

★ *Minicam* Photography



**"WHAT IF
SHE ISN'T
PHOTOGENIC?"**
**HOW TO PORTRAY
ORDINARY FACES**

THE WAY TO THE HEART • SHOOT IT IN COLOR

Give the camera fan a good light for CHRISTMAS

Even though Jane Withers is one of 20th Century-Fox outstanding stars, currently starring in "Golden Hoofs", at home she is just another camera fan who has found Dinky-Inkies the best lights for home photography!

Used by Major Picture Studios Now Available to Everyone!

"Give us proven lights!" say camera fans, amateur and professional.

Developed and proven in the grueling service of Hollywood's major Motion Picture Studios, Bardwell & McAlister incandescent lights are the choice of the top notch camera men everywhere.

The "Dinky-Inkie" and its big brother the "Baby-Keg Lite" together with the Foco Spot Attachment are in daily use in Hollywood and throughout the world—because of these exclusive advantages:

1. **Correct**—photographically and optically.
2. A **soft, clear, even field** with amazing light intensity.
3. **Patented instant-focusing device** from spot to flood.

To you, as a camera enthusiast, these features mean distinctive and unusual new lighting effects—better pictures and the elimination of costly retakes.

See and operate these Bardwell & McAlister Lights before you purchase any lighting equipment—and accept no substitute! Every genuine Bardwell & McAlister light bears the Bardwell & McAlister trademark. Look for it!

Distributed by All Eastman Kodak Stores

Bardwell & McAlister, Inc.

*Manufacturers of Lights
For Every Photographic Need*

7636 SANTA MONICA BLVD., HOLLYWOOD, CALIF.

Dinky-Inkie, Baby Keg Lites and Foco Spots are in daily use in 20th Century-Fox, RKO, Warner Bros., Paramount, MGM, Chas. Chaplin, General Service, Universal, Republic, Columbia, Samuel Goldwyn, Hal Roach and other Studios.



Ready for the starting gun

THIS time, you're waiting for an iceboat to flash by—tomorrow, perhaps, it may be an informal portrait indoors. That's when the great versatility of *Agfa Superpan Supreme Film* counts—you're always ready for the next one.

Superpan Supreme has a remarkable combination of high speed, fine-grain and balanced color sensitivity. Together, these characteristics provide you with an unusual range of picture-taking opportunities. Indoors or out—you'll get beautiful results with this widely used film.

Next time you see your dealer, ask for Superpan Supreme! Rolls. Packs. 35 mm. spools and cartridges.
Agfa Ansco, Binghamton, New York.

Agfa

**SUPERPAN SUPREME
FILM**

MADE IN U. S. A.



MINICAM

THE MINIATURE CAMERA MONTHLY

EDITED BY WILL LANE, A. R. P. S.

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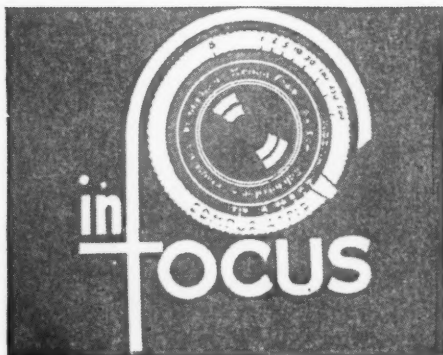
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"Parody"

Sirs:

A ga-ga-eyed gal was reproduced in a recent issue of *Life* as a supposed parody on MINICAM.

Well, I don't propose to let MINICAM take it lying down. A good offense is the best defense, in these wartime days. So here is my version of a parody on *Life*, showing an "air raid victim" with a window sash around her head and a bottle of catsup in her hand to show the entire idea was "framed" in more ways than one.



I posed the picture, made an enlargement the size of the magazine, and then pasted on the nameplate of an old issue. Parodying magazine covers is fun.

HOOTEN GIBSON.

New York City.

"Untamed" Lightning

Sirs:

While in Mackinac, last week, we experienced a terrific thunder storm. With a

MINICAM PHOTOGRAPHY (TITLE REG. U. S. PAT. OFF.) PUBLISHED AT 22 E. 17TH ST., CINCINNATI, O. EDITOR: WILL LANE, A. R. P. S. BUSINESS MANAGER: A. M. MATTHEW. EDITORIAL ASSOCIATES: HENRY CLAY GIPSON, HENRY HOLMES SMITH. CONTRIBUTING EDITORS: JACOB DESCHIN, A. R. P. S. JACK POWELL, J. GIBSLAIN LOUTENS, F. R. P. S. VICTOR H. WASSON. ART DIRECTOR: BOB WOOD. PUBLISHED MONTHLY BY THE AUTOMOBILE DIGEST PUBLISHING CORP. YEARLY SUBSCRIPTION: \$2.50 IN U. S. A. AND POSSESSIONS; CANADA AND COUNTRIES IN PAN-AMERICAN POSTAL UNION, \$3.00. ELSEWHERE, \$3.50. SINGLE COPIES, 15c. EASTERN ADVERTISING OFFICE: EVERETT GELLERT, 62 WEST 48TH STREET, NEW YORK CITY. TELEPHONE VA. 4-3254. MID-WEST ADVERTISING OFFICE: BERNARD A. ROSENTHAL, 333 NORTH MICHIGAN AVE., CHICAGO, ILL. TELEPHONE, FRANKLIN 7100. WEST COAST OFFICE: A. ROTHENBERG, 2275 WILSHIRE BLVD., LOS ANGELES, CALIF. TELEPHONE, FEDERAL 3897. ENTERED AS SECOND CLASS MATTER AT CINCINNATI, O., MARCH 21 1938, UNDER THE ACT OF MARCH 3 1879 PRINTED IN U. S. A.

DO IT TODAY!

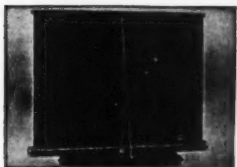
SEND IN YOUR ENTRY FOR THE



Screen Naming CONTEST!



Used as a Hanging Screen.



Used as a Table Model.



Used as a Tripod Screen.

THREE SCREENS IN ONE — 30" x 40" \$7.50*

Suggest a name for Da-Lite's new low-priced screen and your reason for the name you recommend. You may win \$200.00.

These facts about the screen will help you select an appropriate name. It is a triple duty screen that can be used as (1) a tripod screen, (2) a map-type hanging screen, or (3) a table screen. The surface is Da-Lite's famous Glass-Beaded surface, which reflects more light and stays white longer than any other white surface. This screen (a 30"x40" size) with case, folding tripod, and special Da-Lite two-ply support for setting up on table sells for only \$7.50*. See this new Da-Lite Screen at your dealer's! Ask him for entry blanks. There are 139 prizes and you may win one of them.

Send your entry today!

*Prices slightly higher on Pacific Coast.

Follow These Easy Rules!

1. Suggest a name for DA-LITE'S NEW GLASS-BEADED Tripod Hanging Table screen and give in 25 words or less your reason why you think this name is best.
2. Send in as many entries as you wish. Mail to DA-LITE Screen Contest Editor, 215 N. Michigan Avenue, Chicago, Illinois.
3. The contest closes December 31st, 1940. Your entries must be post-marked not later than midnight, December 31st, and must be received by us within ten days.
4. An independent, experienced contest organization will have complete charge of the contest. They will judge all entries from the standpoint of originality, uniqueness and applicability of the name suggested in conjunction with the sender's reason for recommending it. Decision of judges will be final. In case of ties, duplicate prizes will be awarded. All entries become the property of DA-LITE Screen Company, Inc., Chicago, Ill. No entry will be returned.
5. Any one living in continental United States may compete, except employees of DA-LITE Screen Company, Inc., and its advertising agency or their families. The contest is subject to Federal, State and Local regulations.
6. Prizes with a total value of \$1,050 will be awarded. First prize is \$200.00 cash. See complete list of prizes at upper right.
7. All winners will be notified by mail. A complete list of the winners will be sent on request of any contestant enclosing stamped, addressed envelope.

AND YOU MAY WIN \$200.00

\$1050.00

IN 139 PRIZES

Contest Closes December 31st, 1940

FIRST PRIZE—CASH..\$200.00

3 Second Prizes—Cash
Each \$40.00

10 Third Prizes of Da-Lite Projector Stands.
Retail Price, each..... \$18.00*

These stands are adjustable in height and have a tilting rotating platform. They are ideal for showing movies, for use as a camera tripod or a support for clamp-on type light reflectors.

25 Fourth Prizes of Da-Lite No. 2 Unipods.
Retail Price, each..... \$6.00*

This popular camera support has a neck strap and is adjustable in height from 11" to 17". For movie or still camera. Weighs only 12 ounces.

100 Fifth Prizes of Da-Lite 22" x 30" Junior Screens. Retail Price, each \$4.00*

This has Da-Lite's Glass-Beaded screen surface and special two-ply spring wire support for setting up on a desk or table.

139 PRIZES
—Total Value \$1,050.00



ENTRY BLANK Mail Now!

CONTEST CLOSES DECEMBER 31, 1940

DA-LITE SCREEN CONTEST EDITOR:

Dept. 12-M. 215 N. Michigan Ave., Chicago, Ill.

For the new Da-Lite Glass-Beaded Triple Duty Screen

I suggest the name:.....

My reasons are:.....

.....

.....

.....

.....

* Limit statement to 25 words or less.

NAME

ADDRESS

CITY STATE

NAME OF DEALER



rubber sheet around me to protect, not only myself, but my lens and camera, I stalked nature's blitzkrieg like a hunter in the midst of wild creatures.

I used no tripod, opened the shutter to time and aimed the camera (with lens open at $f/3.5$) in the general direction of the lightning flashes. I called this zigzag or photographers lightning and in the pictures you will notice that all the streaks are between the clouds and the surface of the lake.

In the above, you will see where a fork of the lightning headed straight for the photographer but, luckily, discharged itself into the lake directly in front of me. At the time I took this picture the danger was not fully realized until

the print was developed. All I remember was that it was an exceptionally brilliant flash, something like General Electric's man-made trained and tamed lightning (*In Focus*, Nov. MINICAM, page 4) except that my lightning was wild and unpredictable. FRANK BARGUS, Detroit, Mich.

Would Collect Kodachromes

Sirs:

I wish to thank you for your letter of Oct. 16th and offer of the use of MINICAM's "In Focus" Department.

I have in mind the collecting (not exchanging) of Kodachromes, now that duplicates are available. Kodachromes such as that of MINICAM's October cover, the Kodachromes of news events, such as the explosion of the German airship Hindenburg, at Lakehurst, N. J., some months ago, etc., etc.

I thought when first attempting this collection it would be a simple matter, at least as easy as collecting postage stamps, but unlike stamps Kodachromes aren't to be had, they're copyrighted.

Probably after the next Republican election victory MINICAM might include a third section, such as "Minicolor" or "Colorcam" listing any prominent Kodachromes available.

509 Logan Avenue,
Toronto, Ont., Canada.

H. J. DAILEY.

YOUR FAMILY ALBUM

Deserves an

ELWOOD ENLARGER

This Christmas



STUDIO MODEL S-2

For negatives $2\frac{1}{4} \times 2\frac{1}{4}$ " up to 5×7 ". Recently streamlined for still greater efficiency and convenience. One of nine popular models in the Elwood line. See at your dealer's.



Mary and her new dishes, Christmas, 1940

Do you want greater brilliance, more contrast, better gradation of tones in the pictures you make for your family album? Then, give yourself an Elwood Enlarger this Christmas! Its patented, polished silvered reflector passes the light through the negative at the correct angle to insure even illumination and all-over sharpness. Choose from nine models. Write for free 64 page catalog.

ELWOOD PATTERN WORKS, Inc.

Dept. 12-M, 125 N. East Street, Indianapolis, Indiana

Canadian Agents and Distributors:

W. E. BOOTH CO., Ltd., TORONTO AND MONTREAL



\$1.00
POST
PAID

For this popular gift kit containing 6 favorite surfaces of Halobrome enlarging paper packed in individual envelopes of 4 sheets each in 8 x 10 size, all double weight stock.

This Christmas--Give Darkroom Friends

HALOBROME PROJECTION PAPER KITS

Here's the ideal gift for photo fans. Any friend, proud of his enlargements, will appreciate this attractively packaged kit of Halobrome projection paper.

By its combination of photographic excellence and cost-cutting processing advantages, Halobrome's beautifully balanced emulsion wins enthusiastic praise of practical photographers. Halobrome captures minute detail with brilliancy and depth uncommon in ordinary projection papers.

50% latitude in both over-exposure and under-exposure practically eliminates guesswork—min-

imizes waste. Easy development, 45 sec. to 4-min. development tolerance and forced development without fog practically eliminate expensive "make-overs".

That's why photographers like to try Halobrome no matter what papers they may now be using. Reason enough why a Halobrome Kit makes such an ideal gift for your darkroom friends

THE HALOID COMPANY

MAIN OFFICES AND FACTORIES, ROCHESTER, N. Y.

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Chicago 608 So. Dearborn St.
New York 144 Lafayette Blvd.
Los Angeles 714 So. Hill St.

New York 330 W. 42nd St.
Philadelphia 1015 Chestnut St.
San Francisco 222 Kearny St.
Washington 15th & K Sts., N. W.

Distributors: Rectigraph Co. of Canada, Ltd., Toronto

MAIL COUPON TODAY!

THE HALOID CO., 344 Haloid St., Rochester, N. Y.

Here is \$....., please send Halobrome Kit(s) to the attached list of darkroom fans.

NAME.....

ADDRESS.....
(send cash, check or money-order)

"Flash Shots by the Meter"

The following quotation is from Don Mohler's reply to an inquiry about his article in September MINI-CAM.—Ed.

Sirs:

The first step is to light up your scene with No. 2 Photoflood lamps in reflectors (any other size photoflood lamp will do as long as lamps all of one type are used). No. 2 photoflood lamps are preferred because they give enough light for a fairly high meter reading which cuts down the possibility of error. The next step is to set your meter for the speed of the film you intend to use, take a meter reading of the scene, and set the arrow on the meter opposite this meter reading light value exactly as if you were going to take a picture with the flood lamps.

Now that the meter has been set you will find you have a choice of a number of stop openings opposite which appear the correct shutter speeds for these stop openings. One of the shutter speeds which you could use is $2\frac{1}{2}$ seconds. Some stop opening will appear opposite the $2\frac{1}{2}$ second mark. This stop opening is the correct one to use for your flash exposure if you are going to make a picture by the open-flash method using a lamp having a 40,000 lumen second rating.

If after the light has been measured and the meter has been set, you do not find $2\frac{1}{2}$ sec-

onds opposite some stop opening which is on your camera, then you have too much or too little light on your scene for a flash picture, and the position of your reflectors will have to be changed.

You cannot know until you measure the light and make the setting of the meter, exactly what stop opening will appear opposite the $2\frac{1}{2}$ second mark. But no matter what that stop opening is, that is the one to use for your flash exposure. It might be $f/4.5$ or it might be $f/22$ or it might be any other stop opening.

If by any chance this explanation does not succeed in pointing out the connection between the various factors involved, will you please re-read the original story very carefully and ask me any other questions that may help to clear the matter up for you.

General Electric Co.,
Nela Park, Ohio.

DON MOHLER.

"Superpan Panning"

Sirs:

Under separate cover please find copy for my column, "I wonder who the hell writes it?"

Remember?—

J. H. SAMMIS.

WE'RE on the griddle now! Please let us appeal to your sense of humor, Mr. Sammis, and let us try—with apologies—to make the omission of the by-line from your department last month as laughable as you have made Superpan Panning this month. It's on page 10—by-line included.—Ed.

The Faster Speed of EDWAL'S NEW QUICK-FIX



**FIXES FILM
IN
3 MINUTES**

Gives You More Pictures Per Evening

Instead of spending 15 or 20 minutes to fix and harden film, you can now do the job in three! Use the extra time to develop more films. Quick-Fix is the fastest fixer ever offered to amateur and professional photographers.

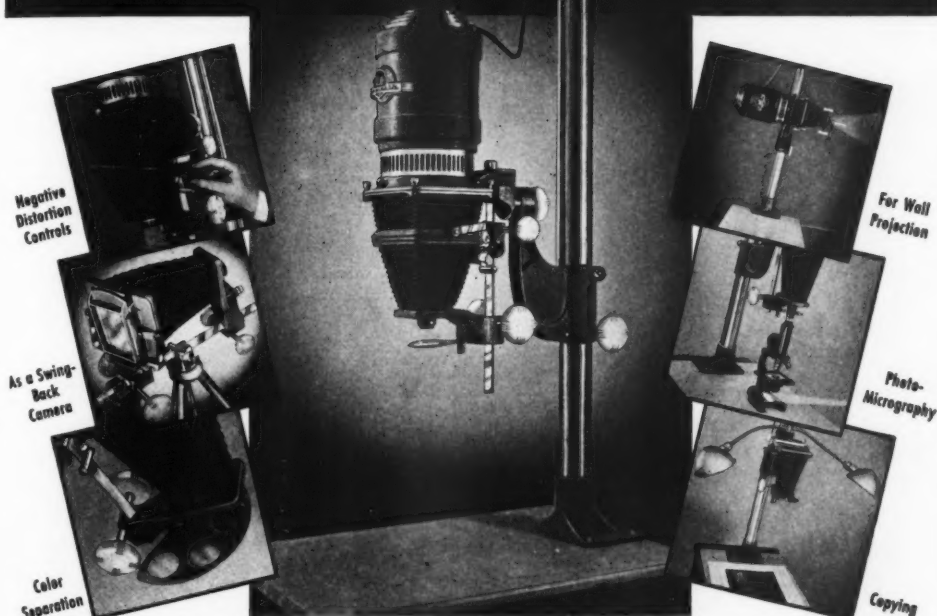
It goes farther too—twice as much film can be processed without changing the fixing bath. It takes only one quart of concentrate to make one gallon of high speed or two gallons of standard speed solution. Get Edwal Quick-Fix at your dealer's today. Write for new free Quick-Fix folder!

1-Quart Size \$1.00
3-Quart Size \$2.70
5-Quart Size \$4.50

One quart of concentrate makes one gallon high speed solution or two gallons standard speed solution.

THE EDWAL LABORATORIES, INC.
Dept. 12M, 732 Federal Street, Chicago, Illinois

DeJUR "Versatile" ENLARGER



The DeJur "Versatile" represents an entirely different standard not only in performance, but also in versatility, design, construction and value.

Because you can use both Negative distortion and Lens control simultaneously, new brilliance and sharpness is made possible. Moreover, the 5" optically matched plano-convex condensers assure complete negative coverage and magnificent enlarge-

ments, regardless of negative size.

Dual-controls permit the use of either the right or left hand . . . "Aero-Teck" construction guarantees a cool, light-tight enlarger . . . Heat-absorbing filter makes it easy on film . . . film accommodations from 8mm to 2 1/4" x 3 1/4" . . . Plus many other features that have heretofore been just dreams on the part of those who have sought perfection in their enlarging results.

\$79.50 Complete with Dustless Negative Carrier and Center-Drilled Interchangeable Lens-board, 2" Velostigmat F14.5 Lens — \$12.50. Other accessories available

Visit your dealer immediately, or write for FREE booklet, Dept. M-1

Made in the United States of America

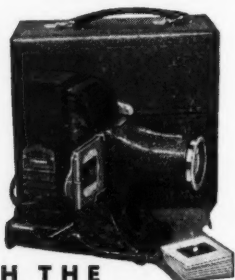
DeJur-Inesco Corporation

SHELTON, CONNECTICUT



NEW YORK SALES OFFICE ROCKEFELLER CENTER

Say
**"Merry
 Christmas"**



WITH THE
 100 Watt Model RK

S.V.E. Miniature PROJECTOR

**And Special Holiday
 Package of Gorgeous
 2"x2" Color Slides**

For the candid camera fan this combination present brings double pleasure. The S.V.E. Model RK Miniature Projector, by showing the fan's own miniature life-size, brings new thrills to his hobby. The set of 10 beautiful color slides of National Parks, the two World's Fairs, Cities, States, Art Masterpieces, and other interesting scenes makes a grand addition to his film library.

**10 Marvelous Color Shots
 Every Camera Fan Would
 Be Proud to Own**

The slides in this Special Holiday Package have been chosen from the new S. V. E. color film Library to give a representative showing of America's most famous points of interest. In this set you will probably find several beauty spots that you have visited. The set by itself, makes an ideal gift for friends who already have projectors. The 10 slides in Eastman cardboard Ready-Mounts and packed in a gay Christmas carton are only \$5.00. A wide choice of Projector models is available from 100 to 300 Watts. The new 100 Watt RK complete with lamp, lens, slide carrier, and carrying case is \$27.50.

Make your selection of SVE gift items at your dealer's today! Write for literature.

SOCIETY FOR VISUAL EDUCATION, INC.
 Dept. 12-M, 100 East Ohio Street, Chicago, Ill.



By J. H. SAMMIS, A.R.P.S.

WHEN A MODEL FINDS out that she is putting on weight in certain places she should stay out of those places.

CROPPING A SAILBOAT PICTURE is just another way of trimming the sails.

A GOOD TIME FOR ALL

In one camshop on a street having parking meters, the clerks will set a darkroom timer for you to tell you when your nickel's time is up.

FUTILITY or (THE JUDGES MUST BE FIXED)

Cameras, I have all sizes,
 Still, how about those prizes?

SOME THINGS TO MAKE PHOTO-GRAPHICALLY:

Calling cards
 Book plates
 Gift blotters
 Lamp shades

MAKE-UP ARTISTS find it takes a lot of pluck to get eye-brows into shape.

THAR'S GOLD IN THEM THAR FILLS!!

The dentist photog who used old gold fillings to make gold chloride for toning prints really gets his teeth into his work. He says it looks best on prints with biting satire.

LIGHT ON THE SUBJECT

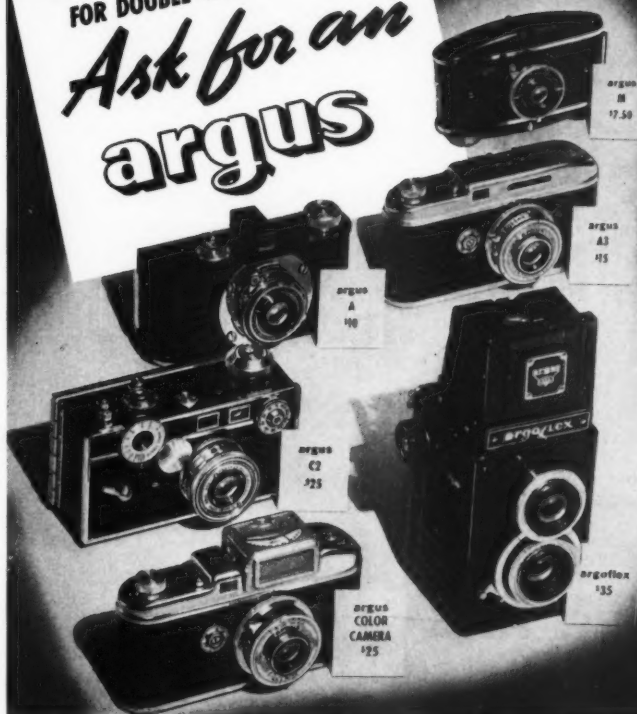
An inquiring young photog from Phiscuss
 Had a keen newsy nose (or probiscus),
 He snapped without pose,
 This man in the knows,
 And the lens that he used was meniscus.

THIS MONTH'S SERIOUS NOTE: Those mounted but blank and blue Kodachrome slides that come back occasionally make passable viewing glasses for black and white photography.

(Page 12, please)

FOR DOUBLE CAMERA PLEASURE

Ask for an
argus



8 FINE argus MODELS

MODEL M—Color-corrected f6.3 lens. Takes 8 or 16 exposures on 35 film . . . \$7.50

MODEL A—f4.5 lens. 35 mm. . \$10. **MODEL A2**—Same, with exposure meter . . . \$12.50

MODEL C2—Coupled range finder and f3.5 lens. 35 mm. . . \$25
MODEL C3—Same, with synchronized flash . \$30

MODEL A3—Fast f4 lens. Extinction-type meter. 35 mm. . . \$15

COLORCAMERA—Photo-electric meter, fast f4 lens. 35 mm. . . \$35

ARGOFLEX—Twin lens reflex. f4.5 lens. Uses 35 type film . . . \$35

**All argus
LENSES ARE
COLOR-CORRECTED**

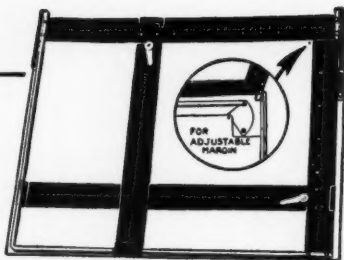
THIS CHRISTMAS ADD *Another* CAMERA FOR COLOR

● Don't pass up beautiful color shots just because your present camera is loaded with black-and-white. You can afford to add an ARGUS to your equipment. These new low-cost Argus cameras have all the features required for superb transparencies in full color. So drop a tactful hint to your own personal Santa Claus—let Mother or Dad or your Wife know you want an Argus—they'll appreciate the tip. Or, if you're giving a camera for Christmas, you can stay within your budget by choosing from the wide selection of models shown here. Priced from \$7.50 to \$35, there's a camera for every picture-taking requirement. See your ARGUS dealer today.

*Get it **RIGHT**
with an Argus!*

argus

Subsidiary of
INTERNATIONAL
INDUSTRIES
INCORPORATED
Ann Arbor, Mich.



For Modern Darkrooms
Bee Bee (all-metal)
ENLARGING EASELS
and MASKING FRAME

11 x 14" Enlarging Easel (illustrated)—has quickly adjustable paper margin guide that sets both margins automatically and keeps them even. Positive locking device holds arms firmly in place and at right angles to frame. Thin, rigid construction. Scaled every $\frac{1}{4}$ "—11" on one side and 14" on the other. Price **\$4.75**
16 x 20" Enlarging Easel—a real precision model for serious workers and professionals. Has every convenience, including white opaque surface for easy focusing; unique arm locking device for perfect alignment, etc. Very substantial. Permits 2" borders. Price **\$12.00**
Bee Bee Enlarging and Masking Frame—all metal construction; efficient lever locks set the arms perfectly parallel and prevent play. Scaled from 1" to 11" and 1" to 14". Price **\$3.50**

At dealers everywhere; or write:

BURLEIGH PHOTO GOODS **BROOKS INC.**
 126 W 42ND STREET NEW YORK CITY

Bee Bee NEGATIVE FILE

Safeguards Against
Damage—Protects
Against Loss!

In addition to being safe and sound, your negatives are instantly accessible in this sturdy Bee Bee Negative File. Comes complete with indexes and 100 transparent envelopes, holding from 200 to 300 negatives, depending on size.

No. 1, for single and double 35 mm. frames **\$2.00**

No. 2, for vest pocket, 4x4 cm. and 3x4 cm. negatives **\$2.00**

No. 3, for $2\frac{1}{4} \times 3\frac{1}{4}$, $2\frac{1}{4} \times 2\frac{1}{4}$ or $1\frac{5}{8} \times 2\frac{1}{4}$ negatives... **\$2.00**

Bee Bee
Filette

The most economical film filing method. Contains envelopes and indexes of identical quality and quantity for Nos. 1, 2 and 3 film sizes. Bored in black leatherette covered cardboard container; cover opens horizontally. Available in above mentioned sizes at..... **\$1.00** each

At leading dealers everywhere.

BURLEIGH PHOTO GOODS **BROOKS INC.**
 126 W 42ND STREET NEW YORK CITY

TIP TO POLAR PHOTOGRAPHERS:
 The di-ethylene glycol in Champlin's No. 17 is also **PRESTONE**, the anti-freeze.

This Month's **LITTLE GEM** from the copy writer:

"Special timer for absentee operation."
 (Maybe he means "self-timer.")

NOTE TO COLLEGE FRATERNITIES:
 Hi Gamma has nothing to do with overdevelopment.

A **DROP OR TWO** of formaldehyde in the pure grain alcohol will improve its keeping qualities—or don't you touch the stuff, anyway?

SANITATION NOTES: How about the fellow who says the only time he really gets his hands clean is when washing prints or squeezing orange juice?

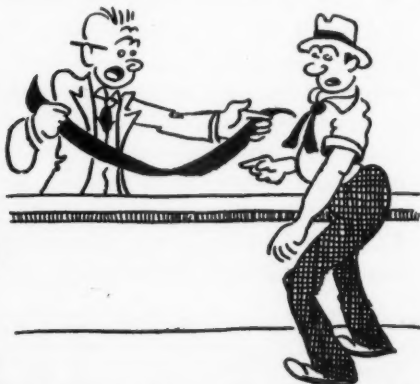
MAKING MTS. OUT OF PINHOLES
 Big blow-ups
 Make big show-ups.

DID YOU KNOW that the "limelight" is derived from the old time lights in which calcium oxide (lime) was heated in a gas flame to glowing white heat?

WHAT? NO COMICS?
 For those who like books without too much reading in them we suggest blotter books.


WERE THEIR FACES RED!!!
 Kodachrome portraits thru red filters.

PEOPLE WHO MAKE those fancy "The End" titles must do nice **FINISHING** work.



"You mean I should of rewound the film in the camera before I took the back off?" (By S J. Ressetter with apologies to J. H. Sammis.)

Wollensak means Good Lenses



"ON GUARD," by Marcus Walter, New York City amateur, whose artistic prints have hung in the New York Salon, the Marshall Field International Salon and other exhibits, here and abroad. It has hung in many camera stores and Photo Club displays in and around New York City and Long Island. The enlargement, from about two-thirds of the 3½" x 4½" negative, was made, writes Mr. Walter, "with an old model Wollensak lens, whose speed, I believe, is either $f:7.7$ or $f:8$." Improve *your* photography with a Wollensak.

For Movies, Candid, Enlarging, Action, Stills

WOLLENSAK OPTICAL CO., ROCHESTER, N.Y.

THIS WABASH SAFETY SPOT

MEANS 3 IMPORTANT THINGS



1.
a **SAFE**
flash bulb!

2.
a **DEPENDABLE**
flash bulb!

3.
a **WABASH**
Superflash bulb!

LOOK FOR IT WHEN YOU BUY FLASH BULBS!

You'll find this exclusive safety spot on every Wabash Superflash bulb. Blue in color, it marks a bulb that's safe to use. Should the spot show pink—you know instantly that the bulb should not be flashed. It's your visible sign of safety . . . an instant signal that Superflash's invisible double safety jackets are guarding you . . . your subjects!

More than that! Because you'll find the Wabash Safety Spot on Wabash Superflash bulbs *only*, it's also your distinctive mark of flash bulb dependability . . . *uniformity*. It trademarks a bulb containing the famous Superflash hydro-nalium all-wire element...the patented, superpowered "fluff" of wire that gives

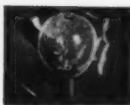
you Superflash's extra-long peak flash; controlled, bulb-to-bulb uniformity . . . helps make possible Superflash's split-second synchronization; sure-fire flashing characteristics!

Always demand the bulb with the blue spot—and be safe, sure *all* ways! At your dealer's. Or write Wabash Photolamp Corp., Brooklyn, N. Y.

NEW!
"PRESS
25"

(25,000
lumen-seconds)

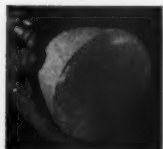
• Mightiest midget of them all! Gives you 40% more light than any other midget flash bulb. Plenty of power for use in any reflector, exceptionally effective in new, directed-flash reflectors.



IT'S WABASH, TOO, FOR DEPENDABLE FLOODLIGHTING!



• WABASH SUPERFLOOD LAMPS



• REFLECTOR SUPERFLOOD



• SWIVEL SOCKET

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WABASH SUPERFLASH and SUPERFLOOD



PUT THE
Holiday Spirit
INTO YOUR PICTURES

50 IDEAS FOR PICTURES YOU CAN MAKE THIS MONTH

● **THE BIGGEST** picture-taking day of the entire year is coming . . . CHRISTMAS! Packed into this one day is every quality that photographers seek: color, action, human interest, story-telling, suspense, emotion, beauty. Get it all.

Christmas day itself is but the climax of the holiday season and of the year. The best Christmas pictures, in fact, are best made before and after the day itself . . . when there is plenty of time to arrange subjects until they are just right.

To get that "something extra" . . . try some of the following: Trim the tree with plenty of light colored stuff. It will photograph better. Use plenty of

shiny ribbons of metal foil "silver rain." Use tinsel and white. Get the people in your pictures to put on light or medium colored clothing. You'll get better pictures of them than in dark clothing. Tell your subjects what the idea of the picture is, and let them act it out themselves. Keep them active and shoot on the wing. Take plenty of pictures. Plan ahead, get all the technicalities and props taken care of, and then concentrate on getting the photograph.

The pictures on your "What to Take" list will be overwhelmingly successful if a few simple rules, to be described later, are followed. First, turn the page for a list of shooting ideas.

CHECK LIST OF HOLIDAY PICTURE IDEAS

ONE of the cheapest, most useful and least used photographic accessories is pencil and paper. Use it for Christmas 1940 and see what a boost it gives your pictures. Put down every single picture idea you can think of, under "before," "during" and "after" headings.

PICTURES BEFORE CHRISTMAS

Dad and Mother studying a big sheet marked "Christmas Budget."
Sister emptying out her penny bank onto a newspaper page carrying a big Christmas advertisement.
Each member of the family hiding boxes and packages in his own private hiding place.
Mother reading a Christmas story to baby.
Mother addressing Christmas cards.
The family pet with a big red ribbon around its neck.
Big hands helping a pair of little hands tie a holiday package.
Child looking up the chimney, Christmas stocking hung from mantel.
Dad on a ladder, putting the topmost decoration on the tree, while Mother holds his legs.
Presents piled around the tree before they have been opened.
The children coming down the stairs in their night clothes.
Children peeking over the banister or through the railing.

Mother trying to cram a turkey into an already bulging refrigerator.

PICTURES ON CHRISTMAS DAY

Mother . . . Dad . . . Brother . . . Sister . . . Baby . . . each with his or her special gifts, taken at the Christmas tree.
All the children, surrounded by presents, in a group at the base of the tree.
Dad standing in front of the tree with a grin on his face and pockets turned inside out.
Sister, sound asleep on the floor, surrounded with dolls and toys.
Baby asleep in his chair.
Dad asleep in a chair, Mother asleep on the davenport.
The family pet having a rough-house with the pile of discarded wrappings.
The faces of the children, in their nightclothes, when they first see the tree.
Mother taking the main Christmas dish out of the oven.
The whole family at the Christmas feast.
Baby tugging at a big package in an effort to get it open.
Children stuffing themselves on Christmas candy.
The family Pet begging for Christmas sweets . . . or a share of the dinner.
Close-up of all the tags . . . "for Dad from Mother," "for Baby from Sister," etc.
Brother handing Mother his gift . . . Watching her open it. *(Turn to page 98, please)*



A LIGHTED HOME (above) is a cheery subject when wreathes and candles burn brightly, and also, perhaps, a light-studded tree in the front yard. Put the camera on a tripod or other firm support, open the lens to its widest, and shoot at about 1 second. Use fast, panchromatic film.

"WATCHING FOR SANTA CLAUS" (left) is a Christmas picture that particularly invites the holiday camera.



TAKE CLOSEUPS. A detail like this tells more of the spirit of the occasion than the entire tree.

PUT A No. 1 flood in the fireplace for back-lighting. Use No. 2's in front to balance.

FLASHBULBS provide plenty of sparkling illumination for that family group around the tree.



★ PHOTOGRAPHY . . .

UNCLE SAM "DRAFTS" THE CAMERA TO MAKE A PERMANENT AND UNASSAILABLE RECORD OF THE SELECTIVE SERVICE LOTTERY

Page 11

Column 1 Read down this column and then start at the top of Column 2	Column 2 Read down this column and then start at the top of Column 3	Column 3 Read down this column and then start at the top of Column 4	Column 4 Read down this column and then start at the top of Column 5	Column 5 Read down this column and then start at the top of Column 1
3470	3435	3001	771	6135
6394	4057	1265	8319	3025
8237	3434	7734	424	7944
7204	3000	4238	7970	1264
0421	9475	3557	7046	5570
6132	6312	9789	5751	3864
3429	1187	7477	3900	4519
130	3405	2677	7147	3636
3686	9680	2550	6258	3596
390	2989	8050	8150	0600
716	3459	1794	4974	2718
6364	1829	7753	3036	1616
4520	5190	6320	251	2986
0625	2967	1084	7610	7429
4110	2031	1341	2676	617
8864	7651	409	2985	1910
1815	7171	7008	5477	693
0040	5128	9512	3206	55
6832	9721	6412	1387	4973
3827	5146	2967	4768	4906
660	9568	6777	8493	6870
8166	6934	8269	8361	5232
6798	6904	292	5187	3439
9090	4555	3718	1417	8348
2342	6866	2388	3726	366
9112	1314	4306	1982	3849
4947	4028	7692	3682	3695
3945	412	1813	2794	1350
7942	436	1110	1980	4207
3817	4254	7364	2671	7444
662	775	959	1595	4969
341	6485	9820	7490	2755
2489	1082	5564	2945	6206
6820	8299	3074	3849	3461

• WHO EVER HEARD of photographing a lottery? A lottery is a gamble and it is against the law to telegraph or broadcast gambling information, let alone publish it.

No one would any more expect to see pictures of a lottery than pictures of a bootlegger or safe-buster at work. Such pictures could be used in court and photographic evidence is enough to convict a man provided the photographs "appear to have been accurately taken and have been proven to be a correct representation of the subject in controversy." A judge's words rest between those quotes.

It was this trustworthiness of photographic evidence that caused it to be called upon for recording 9,000 numbers representing 17,000,000 young Americans

THE OFFICIAL selective service list, part of which is shown above in reduced size, was reproduced photographically to eliminate any possibility of typographical or other error. The numbered slips of paper out of the capsules were pasted on cards, in the order drawn. The cards were photographed on 35mm. film, prints made and then reproduced by photo offset in the government printing office. When, for example, the No. 175's look on the official lists for their numbers, they will see a photographic reproduction of the actual number slip drawn out of the historic fishbowl for them.



1. THE DRAWING of these 9,000 capsules fixed the order in which 17,000,000 Americans are being called to military training, perhaps to war. Dr. Clarence A. Dykstra was determined to have an absolutely accurate record of the drawing. About one number there would be no dispute. . . .



2. THAT, OF COURSE, was the first one out of the bowl, Number 158, which Col. Henry L. Stimson is shown drawing as President Roosevelt watches. These officials, and everybody else, would remember that 158 was first. But what about the other 8,999 numbers to be drawn?

AND ITS PART IN THE DRAFT

BY DILLARD STOKES

in the order in which they would be called to the colors. It was a big gamble for millions of young men, their parents, wives and sweethearts. But it wasn't "gambling" in the legal sense, because there was no monetary gain to look forward to, and only immediate futures were at stake.

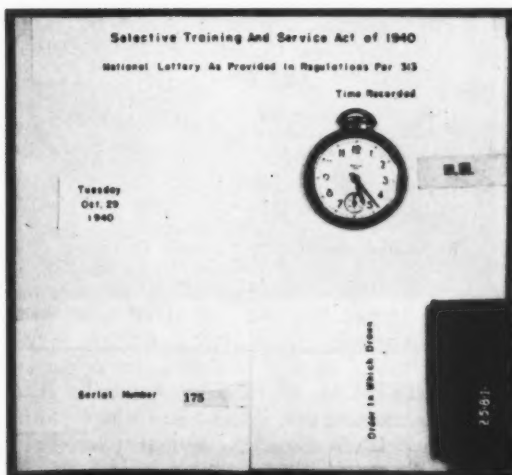
As the numbers were drawn 23 years ago, they were read out and laboriously taken down by clerks with pen and ink. Always there was the chance of a blurred line, a smudge, an error that would take weary hours to correct. Typographical mistakes were inevitable, when it came to announcing the order of the drawings to the people, and proof readers are not infallible! Ask any newspaper reporter!

Dr. Dykstra wanted something better than the methods of 1917. He studied the problem, conferred over the available methods and recommended a technique which, in the World War days, was as primitive as the radio. Photography, of course!

Attached to the selective service administration was E. J. Way, an expert with vast experience in the photographic preservation of records.

Since the numbers were to be read out loud as they were drawn, for the benefit of millions of radio listeners, Way arranged for the reading to be recorded on a continuous sound track. From the track, historians will be able

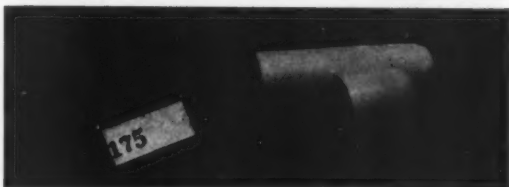
(Page 106, please)



3. THIS IS the setup which was photographed 9,000 times. Uncle Sam has a 16 mm. negative of the above picture showing that Serial Number 175 was drawn at 5:23 p.m. on Tuesday, October 29, 1940, and that the order in which it was drawn, as indicated by the mechanical counter at the lower right, was 2,581st.



4. THE OFFICIAL record consists of two sets of 16 mm. negative film (each about 400 feet) now stored in government vaults. Two cameras were used to make double sure nothing would go wrong. Above is a strip print showing six exposures from sample negative.



5. IN WORLD WAR I, when the numbers came like this out of the capsules, clerks kept the record, laboriously copying and transcribing, digit by digit. There was always the chance of a mistake which would take weary hours to correct. So, this time, Uncle Sam enlisted photography.

★ WHAT IF SHE ISN'T PHOTOGENIC?

FACIAL IRREGULARITIES AND HOW TO FILM THEM

BY JOHN HUTCHINS. A.R.P.S.—OF THE FACULTY, SCHOOL OF MODERN PHOTOGRAPHY

A Photographic Drama In Two Acts TITLE: It Happens Every Day

Principal Characters: An embryo portrait photographer and his model

ACT I

TIME: Any sunny day

PLACE: By the seashore

CAMERA: Any old box

SUBJECT: Beautiful girl

ACTION: Beautiful girl smiles

RESULT: A swell shot

ACT II

TIME: The same

PLACE: The same

CAMERA: A super-special latest model equipped with everything

SUBJECT: Not so hot—bad features

ACTION: Photographer dejectedly tries a few shots

RESULTS: Mostly lousy

(Slow Curtain)

MORAL: It's hard to miss with the perfect photogenic subject but you must know your stuff to get good results with Tillie and Joe Doakes.

● THE TYPICAL ARTIST is "choosey."

He seeks subjects that interest and stimulate him. It's no wonder, then, that he prefers the most easily portrayed subjects.

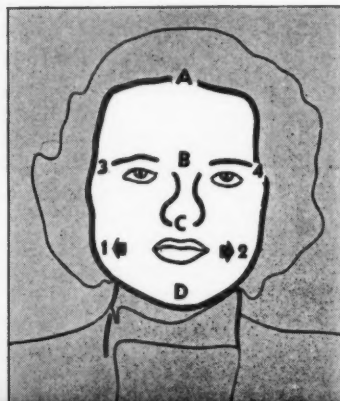
The selection of attractive subjects, whether landscapes, still lifes, or human faces, naturally is the first step in making attractive pictures. Anyone can make pleasing pictures of photogenic subjects.

The real test comes when non-photogenic subjects are tackled.

Beauty is largely a matter of proportion. After studying faces, for a while, in pictures and in the people around you, you will come to see each human, not as a unit, but as a conglomeration of eyes, lips, nose, forehead, etc. If the angels



FIG. 1, the broad face. In an entirely photogenic face, the head tapers toward the chin so that the distance between points 1 and 2 is less than the distance between 3 and 4. Here the distances are too nearly equal. Study also the distances between A, B, C and D. They should be equal, but in this photograph the distance B-to-C is too short, being less than A-to-B or C-to-D.



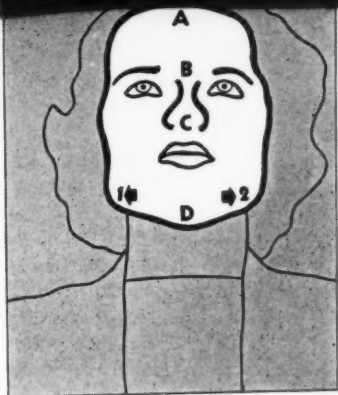


FIG. 2. Lowering the camera and raising the head helps to correct the distance A-to-B by foreshortening it. But, unfortunately, it also increases the disproportion of the dimensions C-to-D and 1-to-2, especially the latter, making the jaw appear even wider than before.



make people, it would not be surprising to find that production is on an assembly line, with chins, eyes, noses, etc., being thrown together like a Ford in which all parts are interchangeable. As a result, most people have one or more features that, while all right in themselves, are not in perfect proportion. When it comes to the distribution of noses, chins, ears, etc., one person's beauty may be another's poison. Very often the "right" nose is on the "wrong face."

FIG. 3. Raising the camera helps the nose dimension, B-to-C, lengthening it. But the forehead A-to-B becomes increased, giving the undesired impression of a highbrow prodigy.



● THE FIRST step in photographing the jig-saw puzzle of a human face is understanding it. Let's imagine we have two subjects before us, a man and a woman, and that we want to make their portraits as pleasing as possible.

If your subject has a broad face he will not like any photograph in which that effect is not minimized. From previous photographs, he already is aware of this unphotogenic aspect.



If a girl has deep-set eyes, don't think for a moment she doesn't know it. She expects *you* to make them appear normal and attractive. No one desires to see even a *slight* emphasis upon his facial irregularities.

It is the photographer's job to minimize these faults. The hit or miss system in photography seems invariably to exaggerate facial defects. There is a difference between minimizing facial faults and actually changing the subject's appearance.

Imperfections are part of a subject's make-up and personality. The finished portrait must, in the final analysis, look like him. The inexperienced portraitist, in his desire to minimize some facial deficiencies, often alters the features of his subject beyond recognition.

Every time a portrait artist paints a picture he is studying and comparing proportions of the face. The photographer can also alter the relative proportions of his subject's features. A forehead may be much too high in proportion to the rest of the face. Another person's small nose is beautifully formed, yet it does not belong on such a large face. The photographer makes it his business to study these facial proportions.

● ONE OF THE MOST familiar types,

is the face that is too broad. Fig. 1 shows such a face.

The distance across the face from the jaw bones, from point 1 to 2 in the diagram, is equal to or greater than the distance between points 3 and 4. The ideally photogenic face should taper down from points 3 and 4 toward the chin as an inverted triangle. This face appears particularly broad because of the fact that the nose does not fit the rest of the face. It is too short and too narrow at the middle of the bridge.

The distances A-to-B, B-to-C, and C-to-D, should be almost equal. Generally speaking, the length of an ideal nose should be approximately one third of the length of the face from the hair-line to the base of the chin. Notice in the photograph, that the nose appears almost bulbous despite its smallness.

In Fig. 2, we have lowered the camera angle and slightly lifted the chin. Result—the forehead is foreshortened, but unfortunately the nose is also foreshortened. The distance C-to-D, is greatly increased, and only emphasizes the disproportionate comparison of the features. The low camera angle makes the jaw extremely wide from 1-to-2.

So we try a high camera angle. (Fig.



FIG. 4. Turning the subject's head to her right cuts down the breadth of the face by lessening the area "B". We are now on the right track. But the area "A" appears disproportionately increased, because the light is coming from that side.





FIG. 5. Maintaining approximately the same camera position as in Fig. 4, the light is now moved around to the left of the camera, reversing the shadows. The diagram shows how this lighting cuts down the form of the face to an inverted triangle, by keeping the near side in shadow.



3). The nose B-to-C is fortunately lengthened, now, but the entire lower part of the face is too small in comparison to the broad forehead A-to-B. The forehead has become greatly over-emphasized.

● WE NOW REACH some interesting conclusions regarding the changing of the comparative proportions of the forehead,

nose, and chin by different camera angles.

1. A low camera angle will lengthen the lower part of a face and shorten the nose and forehead.
2. A high camera angle will shorten the lower part of a face but lengthen the forehead.
3. None of these changes of camera angle have materially helped in cutting down the width of the face.

FIG. 6. The shadow areas in Fig. 5, above, however, are too deep at "A" and at "B". To illuminate these areas, a light is added as close as possible to the camera lens. Note how this improves the portrait.

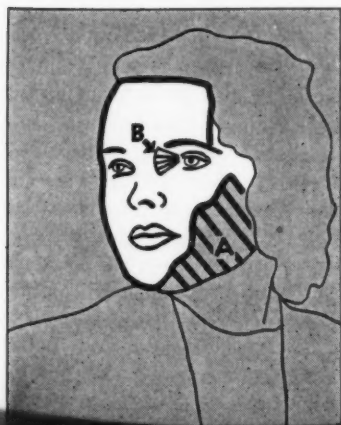




FIG. 7. The final result. Compare this with the previous six versions of the same portrait subject.

the face has been cut down to an inverted triangle. The length of the nose shadow makes the nose appear somewhat longer. The shadow also helps in cutting down the bulbous breadth of the nose.

So far so good. But now we become aware of another glaring fault. The eyes are too deep-set.

We did not notice this before because of the fact that our flood light near the camera focused full in the face, lighting up these cavities.

Let us now see what we can do to illuminate these shadows with a sec-

ondary flood light near the camera lens. The result becomes Fig. 6.

The eyes are still quite dark, especially at the small hollow B. We find that if we project light from the front strong enough to illuminate these deep-set eyes we destroy the shadow A. (Fig. 6). The result would be a reversion to Fig. 4. The shadow A cuts down the face but we need more light in the eyes.

This is a critical moment in taking this photograph. We must move our two front lights very slightly backward and forward until we get effective lighting. Fig. 7 is the result. We have not completely lost the shadow A. Enough light is penetrating the eye sockets to break down objectionable contrast. Retouching can also be used.

(Page 116, please)

Next we instruct the subject to turn the head to the right. (See Fig. 4). This does trim down one side of the face at point B. The right side of the face appears narrower because it is out of our line of vision. But, just look at the left side (A) nearest the camera. Something is wrong there. A photograph of this angle of a broad face using a single flood light near the camera lens is one of the commonest mistakes of the amateur in home portraiture. It is true that turning the head cuts down the side of a broad face. However, the lighting is wrong.

To observe the difference when proper lighting is used, see Fig. 5. This is the same head position and camera angle, except that the main light source is now at the left of the camera at a forty-five degree angle. The diagram shows how



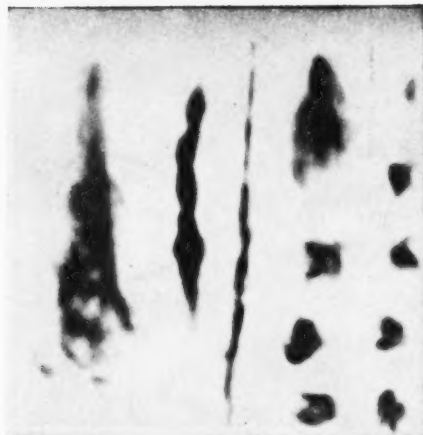
FIG. 8. This type of head is not to be photographed in profile as the extreme slant between points A and B becomes greatly exaggerated and the weak, receding chin results.



FIG. 9. The same head photographed full toward the camera with the light close to the lens for flat illumination minimizes the length of the nose. The relative proportions of forehead, nose and lower face becomes quite pleasing. But note how the ears stick out! From this we can learn not to take full face photographs of subjects with prominent ears.



FIG. 10. The final result. Turning the head slightly to one side conceals one of the ears. The portrait still looks like the subject, but remains a likeness on the flattering rather than the unflattering side as were Fig. 8 and 9. Compare these three illustrations and you will see how easily pleasing studies can be made of relatively unphotogenic subjects.

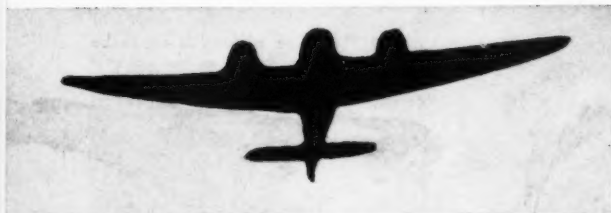


• A TITANIC struggle for mastery of the air is going on overseas. In your darkroom, on the easel under your enlarger, you can recreate these history-making scenes and produce the pictures that no photographer yet has been able to shoot.

It is simply a matter of "double exposure" or multiple printing. A picture, before it is completed, may include parts from a dozen sources. Various negatives are made or selected from your file to provide clouds, aeroplanes, ships at sea,



ARTIFICIAL smoke and shell-bursts like these are prepared in advance for printing in where required.

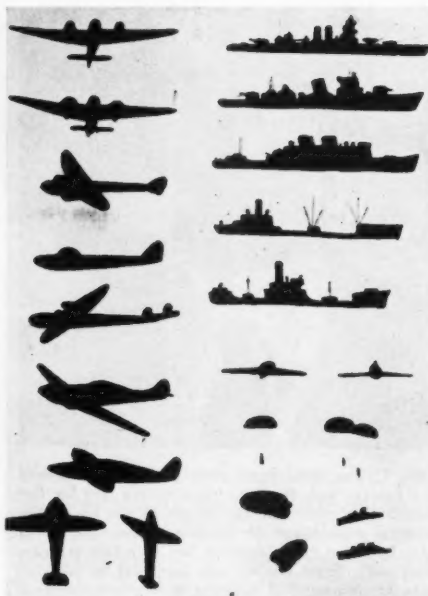


PLANES are traced from any picture source. Boats, balloons, parachutes, etc., also are traced and photographed as seen below.

THE



THE CLOUD BACKGROUND should be from a negative taken at a distance. The clouds shown should cover a small area. The dotted lines show portion used for "Air Armada" (top next page).



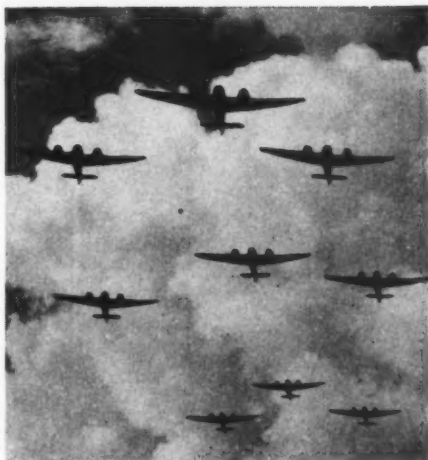
parachutes, bomb bursts, trails of smoke, etc.

The first step is selection of a background. A cloud negative may be used, or the background may be printed from a section of any negative providing a uniform, gray tone. If the background is grainy, so much the better, as it will add to its realistic effect.

The outlines of planes and other objects are best kept fuzzy and a little out of focus. It is a good idea to build up a file of photographs of ships, planes, etc. But in lieu of the real thing, these objects can be
(Page 104, please)



ONE plane, printed nine times, made "Air Armada".



WAR IN THE AIR

CONCOCT YOUR OWN PICTURES OF AERIAL WARFARE
WRITTEN AND ILLUSTRATED BY HENRY CLAY GIPSON



A DOUBLE exposure with a bit of cotton-smoke and we have a disabled ship falling in flames. Note that this this is a detail from the next picture,



"AIR BATTLE. Planes attack convoy. Note the bomb splash in lower right beyond the freighter, and the tiny white parachute near the flaming plane.



METHOD 1: Use of a fuzzy, out-of-focus background gives an impression of spaciousness and depth. The near and far parts of the subject appear separated. A fairly large lens opening, about $f/4.5$ or larger, is used. Photo by Sidney Diamond.



METHOD 2: Use of the diminishing line. Distance is emphasized when a subject is photographed from the front and side to take advantage of the effect of perspective. It here reproduces the recurring archways in diminishing size as they disappear in the distance across the river.
—Photo by Cortland F. Luce, Jr.

THE ILLUSION OF DEPTH

LOOK FOR THE SIX ELEMENTS WHICH GIVE
PICTURES THE IMPRESSION OF SPACE AND DISTANCE

By WILL LANE, A. R. P. S.

● A PICTURE is the image of buildings, people, streets, rivers—and even mountains—all smacked down flat on a piece of paper no larger than a pocket handkerchief! Small wonder that photographs seldom succeed in giving a real impression of the original scene! The amazing thing is that such a pocket-sized reproduction conveys as much as it does.

A picture, whether a photograph or painting, has but two dimensions, height and width. The dimension of depth is necessarily lacking. How to create the illusion of depth on a flat surface has been

the concern of artists for hundreds of years.

The problem is one of showing the distance between objects, of separating the near from the far, of detaching and spacing the objects in a scene.

● “WHAT MARVELOUS roundness and depth!” When that is said about a picture, you know it’s good. Indoors it’s mostly a matter of arranging lights, and excellent examples of pictures with roundness and depth are found in the best Hollywood movies, to say nothing of the

portraits of such modern lighting experts as Henry Clay Gipson and John Hutchins.

But outdoors, it's another matter. Subjects such as rivers and housetops are not things ordinary folk can push around while the sun that illuminates them ploughs its placid course.

As a result, the photographer's control

in landscape pictures is mostly limited to himself, to his camera position. He exercises his artistic ability by such details as choice of subject, camera viewpoint, time of day and lens aperture.

● **THERE ARE** a half-dozen devices or methods that every artist uses consciously or subconsciously. These are illustrated

METHOD 3: Use of long shadows. Backlighting produces elongated shadows which reach like fingers out of the distance to establish the illusion of space and depth.



METHOD 4: Mist and haze. These are enemies of sharpness, but succeed as nothing else to give the impression of great distance. Pictorial scenes of hills or mountains, for example, are best portrayed when there is vapor in the valleys. The early morning and late afternoon hours are the best times to find enough haze in the air to take advantage of this effect. These hours also may provide the elongated shadows illustrated in Method 3. Several of the six elements which give the illusion of depth usually may be seen in the best outdoor pictures.





METHOD 5: Use of isolated objects at varying distances. Note that this picture is made up of "patches" of light and dark starting first with grass in the foreground, then the black shadow across the bottom of the picture, then the white boat hull, then the tree trunks at the left, and so on, each item carrying the eye farther and farther from the camera until we come to the distant boats, the white buildings across the water, and finally, the black skyline against the clouds.



METHOD 6: Framing. The use of a foreground frame such as a pair of legs, a tree, window or door, provide a scale of comparison, permitting the eye to look from near to far objects in the picture and to compare, for example, the size of the foreground legs with the tiny figures in the distance . . . to notice their relative size. Seeing a picture like this gives the impression of looking out of a window on a vast and expansive vista.

here in the following order: (1) the out-of-focus background, (2) diminishing lines, (3) long shadows, (4) haze and mist, (5) use of isolated objects at varying distances, and (6) the foreground frame.

● **METHOD 2**, the use of diminishing lines is, perhaps, the most familiar. In the illustration, the receding lines of the bridge and the archway shadows are emphasized by repetition of their reflections in the water. The shorter the focal length of the camera lens used, the greater is the effect of the perspective created. The illusion of depth is created by the convergence of the lines as they apparently meet in the distance.

● **METHOD 3** depends not on the perspective of the objects, but on their shadows. Backlighting is used, the camera facing toward the sun, during early morning or late afternoon when the sun is low. The camera lens should be in shadow or shielded by means of a hat or

other object held so as to throw a shadow on the lens. A lens shade alone is not sufficient to protect the lens from direct rays when facing directly into the sun.

● **METHOD 4**, the use of haze and mist in a landscape, also puts a premium on the early hours of the morning. Pictorialists like Leonard Misonne take most of their pictures before 9 a.m. The effect of haze in the atmosphere increases with the distance from the camera. Thus foreground objects are reproduced with great contrast and definition, while distant objects appear relatively greyer and hazier until they fade away into the distance.

In a forest scene, for example, the haze seems to separate the trees, setting them off from each other, like successive curtains on a theatrical stage. The effect is even more pronounced in mountain scenes when low-lying mist or fog in the valleys curtain off successive mountain peaks.

(Page 87, please)

How to photograph . . .
JACK FROST'S WINDOW PANE ART SHOW

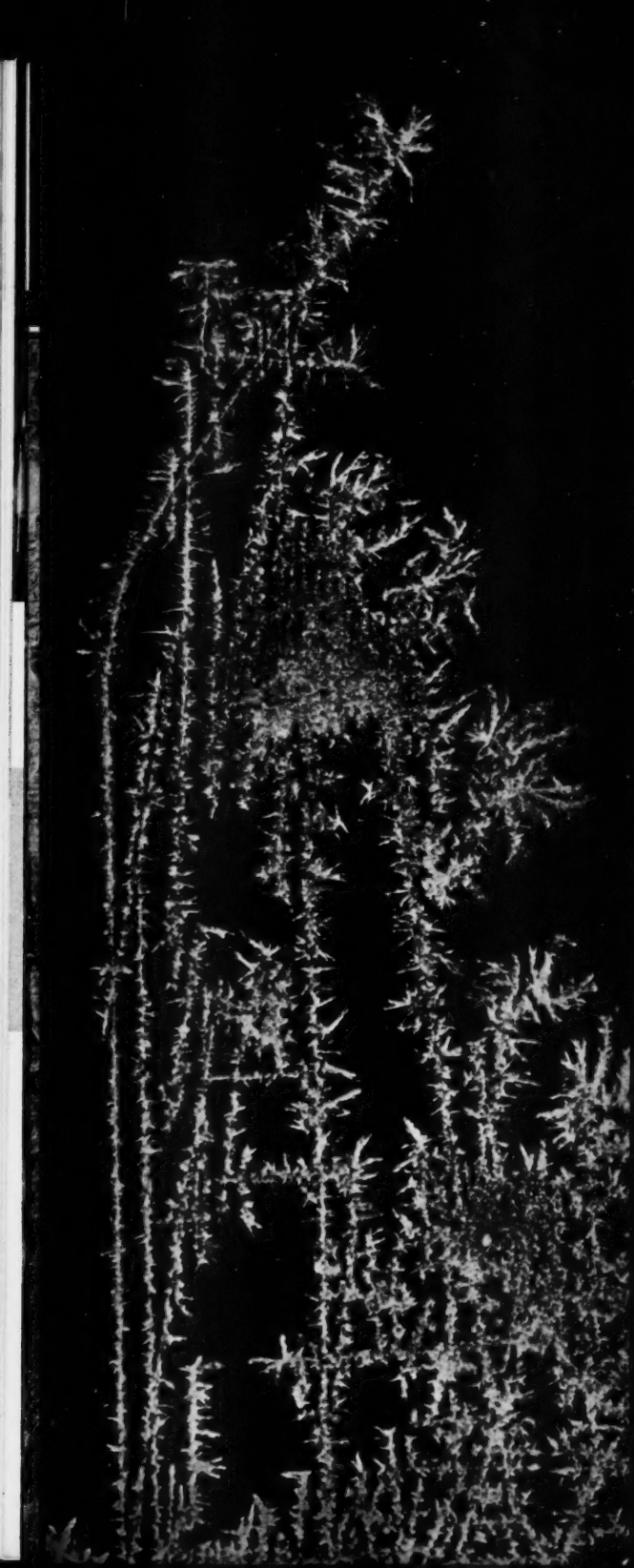
WRITTEN AND ILLUSTRATED BY CLARENCE PONTING





TONE POEMS in silver and grey result from the leafy designs which King Winter is glad to engrave wherever given a chance. Every window pane is a custom-made pattern; no two are alike.

The casement window on the previous page has four sections and even these differ in detail. The enlargement, above, is one of the panels from the same picture. Exposure 1 second, lens at f11.



JACK FROST'S FINGERS are busy tracing crystalline patterns on window panes, these days, for the special delectation of camera folk who like their designs ready made and as clear cut as precious stones.

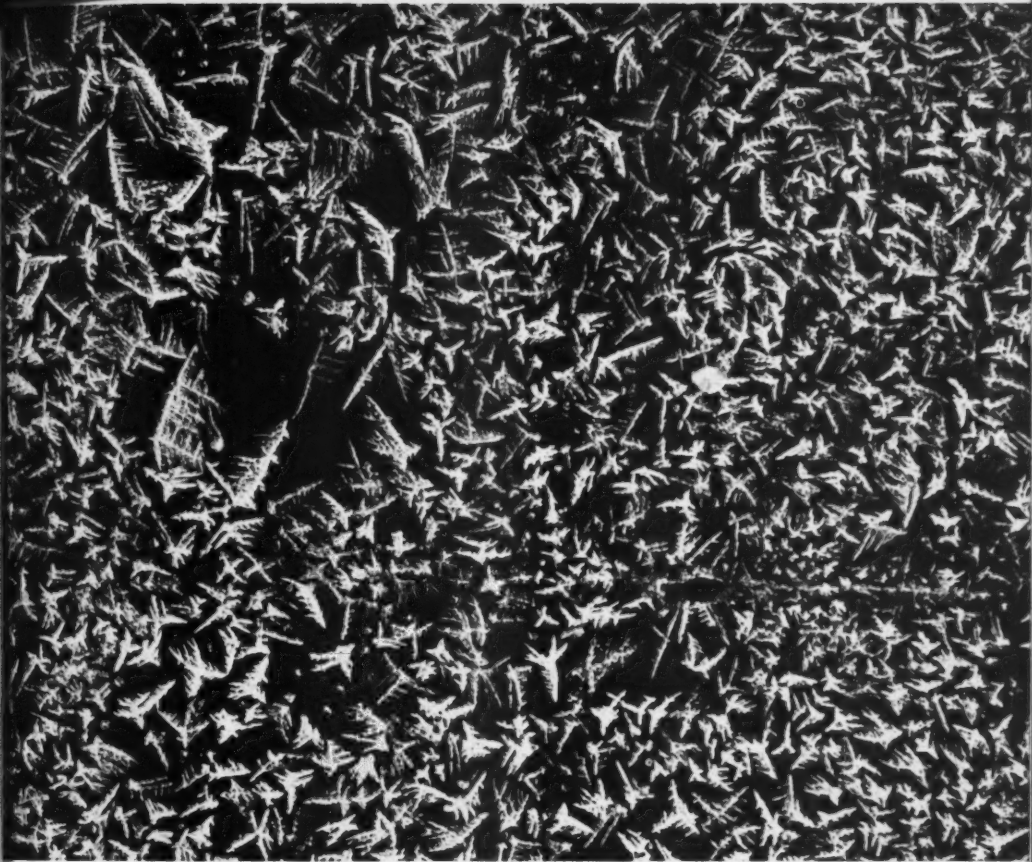
Karel Capek in his amusing book *The Gardener's Year*, has an instructive paragraph or two on the subject of these ice-flowers.

"In December, the best-known plants are the flowers on windows. To make them flourish, your room must be foggy with vapor; if the air is completely dry you will not raise one poor little needle, not to mention flowers.

"The window must not shut properly — where the wind blows into the window, flowers of ice will grow. They flourish more with poor people than with the rich, because the windows of the rich fit too well.

"Botanically, the flowers of ice are distinguished by the fact that they are not flowers at all. They are merely foliage resembling endive, parsley, and the leaves of celery, as well as different members of the family Cynarocephalæ, Acanthacæ, Umbelliferæ, and so on. They may be compared with the cotton this-

STRANGE and beautiful plants grow where Jack Frost is allowed to blow his icy breath. The photographic results often resemble ferns or palm leaves and have fascinating spiny, feathery, toothed, jagged, cut, clipped or hackled foliage.



SNOW-COVERED tips of pine and fir trees from the air are suggested in this panorama of the Frozen North, but this pattern may be on your window, tomorrow. Any camera can photograph its own "ice flower" salon, and suitable subjects are as conveniently close as the nearest pane on which frost has had its say.

tle and other plants having spiny, feathery, toothed, jagged, cut, clipped, or hackled foliage. Sometimes they resemble ferns or palm leaves, and at other times the needles of the juniper; but they never have flowers."

This quotation serves to show that in the photography of frost patterns on window-panes, we have a varied selection from which to choose. It is one of the few things which have not, as yet, become hackneyed by being over-photographed. Many of these photographs will merely be records of the patterns on the windows. Here and there, however, Jack Frost seems to take a special pride in his work, and

produces a design which falls into such decorative lines that the photographer can make it form the basis of a Salon print by introducing his own individual touch into the finished print.

Quite different results are obtained, for example, when the designs are photographed inside or outside the room containing the decorated window. If photographed from the inside they will have to be treated as "high-key" subjects, and will require considerable skill on the part of the photographer in the matter of exposure and development, if the delicacy of the frosted design against a light background is to be retained. When taking

the subject from inside a room, the chief difficulty will be in avoiding a patchy background, due to the variations of light and shade caused by an out-of-focus background, which may be a street or garden vista. In the majority of cases the background will compete with the frost design, unless the frosted window can be obtained against an even-tone background; such as a lawn, or plain wall.

The difficulty can also be overcome by choosing patterns that have formed on windows fitted with translucent not transparent glass, such as found in the bathroom. As this room can always be depended upon to provide humid, foggy atmosphere, its windows are sure to carry the best designs in the morning after a night's hard frost. These semi-opaque panes also make picturing the design from the outside an easy matter, as it blurs any inside objects into an even tone, which with clear panes might form an objectionable and fussy background.

Ripple glass frequently gives magnificent frost designs, possibly because it is thicker than ordinary window glass, and so more rapidly condenses moisture. Unfortunately, this glass makes the recording of the design rather difficult, owing to the rippled surface being outside the window, and this may appear superimposed over the ice-pattern (which is inside the glass) due to the reflected light. This can sometimes be avoided by holding an open umbrella at the back of the camera. The superimposition of this ripple will be particularly noticeable when snow is on the ground, for light will then strike the glass from two directions, the sky and the snow-covered ground.

Windows fitted with plain, transparent glass are also subject to the difficulty of avoiding reflected objects, both inside the room and from outside objects. In a bright light even the camera itself may be reflected in the glass, especially when a black background has been placed behind the glass to throw up the pattern. Here again, the open umbrella can be employed, and the camera should be draped with a black cloth. Clear windows

require a dark background to accentuate the pattern and intensify the frost-tracery. For more delicate effects the darkness of the room's interior usually suffices, but care must be exercised to see that light-colored objects inside the room are not recorded on the negative.

The gradations of the frost-pattern can be controlled by the photographer when making the exposure, by the use of dark or light-toned backgrounds. It can also be accentuated or lowered in tone by development time, which will control negative contrast; if the lighting of the subject is flat, increase the development time of the negative to give increased contrast. The same effect can be obtained by choosing the desired contrast of enlarging paper.

Taking frost pictures presents no special problems. A tripod is indispensable. The lens will require to be stopped down a little, say about $f/8$ or $f/11$, to insure the recording of fine detail. The camera must also be capable of focusing near objects, and if a range finder is not fitted, the distance must carefully be measured.

Using a small stop in the lens will usually overcome the difficulty of incorrectly judging the distance, as this will increase the depth of focus. The best instrument for this work is a view camera which allows the image to be focused on a ground glass screen. A reflex instrument is also useful, provided the windows are low enough to record without having to tilt the camera. As the patterns are on a rectangular sheet of glass, it is vital to success that the camera should point fair and square with the window, or the rectangle will be thrown out of square.

Those whose cameras are incapable of close-up focusing, need not be debarred from picturing these frost-patterns. It is only necessary to go far enough back to take the whole of the window on a small scale and rely upon the enlarger to produce the finished picture of the required size.

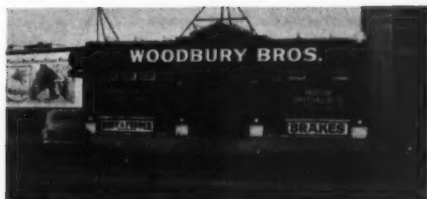
If the window is one of the casement type, or one with multiple panes, this will

(Page 93, please)

\$\$\$ WITH YOUR CAMERA

★ SELL PICTURES OF PRODUCTS

MANUFACTURERS SEEK ILLUSTRATIONS SHOWING THEIR EQUIPMENT IN ACTUAL USE



FIELD PHOTOS are taken in pairs. First shows the service station, shop, store or plant in which the equipment is used, as illustrated above. FIG. 1

THEN picture the equipment in use (right). FIG. 2



By C. B. SCHROTH, ASSOCIATE EDITOR, AUTOMOBILE DIGEST

● PRIDE HAS A PRICE! That's why John Brown buys a better car than Neighbor's—and Mrs. Brown wants a mink coat instead of squirrel like Mrs. Neighbor's. That's why the old itinerant photographer could always sell Junior's picture on the front steps to a doting mother, and that's why delegates will always buy pictures of the convention assembly.

A virgin field awaits the intelligent free lance photographer who can assimilate the idea that BUSINESS can have pride as well as individuals, and pays well for it, too.

You'd think that every manufacturer, particularly the large ones, would send instructions to local offices, sales crews, or

branch managers to take pictures of *their product in use, and backed up with some human interest value.* Well, you'd think manufacturers would send out such instructions to their employees, and maybe they do, but they don't get any response. Salesmen for the most part aren't photographers, or they don't extend their photographic hobby to their business. So the manufacturer's natural desire to see his product in use languishes. Here is the greatest single undeveloped market for making money in amateur photography.

● PROOF OF THE DEMAND is evident in the experience of *Automobile Digest*,

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PICTURE EQUIPMENT clearly, avoiding unnecessary surroundings. FIG. 4

EXTERIOR SHOTS are best when they show the name of the firm clearly as in Fig. 1. This may not always be possible, as in the picture below. Nevertheless it is an important consideration when choosing the camera angle from which to photograph the building. FIG. 3



★ MINICAM'S

CONDUCTED BY VICTOR H. WASSON

Study these pictures and see if you can answer the questions below before looking up correct answers on next page

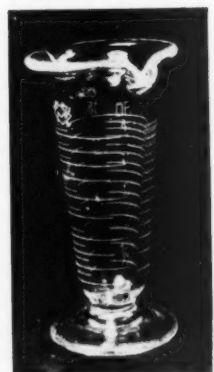


1. Both these prints are from the same negative. The texture in the print on the right was produced by ☐ A mask. ☐ Hand work. ☐ Air brush. ☐ Stencil. ☐ Texture screen.



2. Only one light was used in lighting both these pictures. The effect in the exposure on the right was achieved by ☐ "Painting" with the light. ☐ Diffusion. ☐ Reflectors.

3. (Right) Are these pictures ☐ Positive and negative? ☐ Two positives? ☐ Two negatives? ☐ Negative and positive?



4. (Below) Each of these prints shows evidence of poor taste or judgment in the way it was taken. Can you suggest a way to improve each of them?



KAMERA KWIZ

ANSWERS

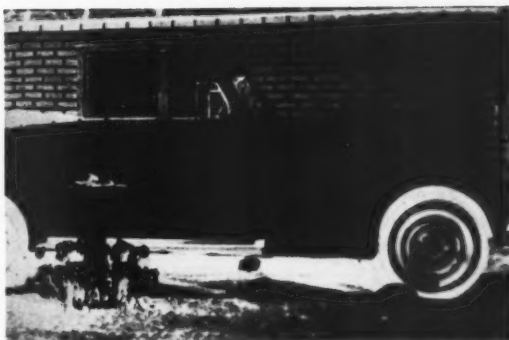
Don't peek! Check your questions before consulting these answers.

1. Texture screens are used to produce such patterns on portraits and pictorial studies.
2. The picture on the right was made by "painting". That is, the lens is stopped down, the shutter set on "Time" and opened. Then light from a hand-held reflector is played over the subject from all angles for sufficient time to constitute correct exposure.
3. These are two positives. The one on the left was printed first, then the background was opaqued and the print on the right made through the back of the same negative.
4. In the picture on the left the skyline cuts the picture exactly in half. Lowering the horizon line or placing a perpendicular subject along this line would help. The stiff record picture in the center would be improved by placing the subject in a natural pose or having him doing something. In the picture on the right the lady is climbing steps right out of the picture. Give action subjects room to move.
5. All-over density of the top negative indicates overexposure. The harsh contrast of the lower negative results from overdevelopment.
6. The picture at the bottom (left) shows the photographer feeling the notches in the edge of a sheet of cut film. When these notches are in the upper right hand corner, the emulsion is facing him. Each emulsion has its own notch pattern so that the operator can distinguish between types when loading film in total darkness.

In the center picture the photographer is "feeling" a solution. Some solutions change noticeably as they age. Fresh hypo, for example, feels "acid"; worn-out hypo is slimy.

The picture on the right shows how to tell the emulsion side of matte paper. When a corner is taken between moist teeth and bitten, the teeth stick to the emulsion side.

Score: 3 correct is fair; 5 correct is good; 6 correct is excellent.



5. Good negatives are important in getting good prints. Both of these bad negatives are "overs." Can you tell which is ☐ Overdeveloped. ☐ Overexposed.



6. In each of these pictures the photographer is gaining information about his photographic materials through his sense of touch. What fact does each action determine?

MAKING LIGHT

TOOLS FOR SUCCESS — THE TYPES OF REFLECTORS

BY DON MOHLER, G. E. FLASH AND FLOOD PHOTOGRAPHY ILLUMINATION SPECIALIST

● **FEW EXPERIENCES** in photography equal the thrill of juggling one's first pair of reflectors to get "effects" with a favorite subject. How pictures that look so sweet to the eye can get so sour in passing through a camera lens is one of photography's painfully persistent puzzles.

Yet the tools for success are easy to use . . . and the rules are simple: 1. Have Enough Light. 2. Put It Where You Want It. 3. Expose Correctly. Admittedly, a lifetime can be spent exploring the possibilities of any one of these rules. But it is mainly in the second rule that the most baffling trouble pops up. Watch any professional photographer at work and notice how much time is given to getting his lights exactly where he wants them! Assuming that the photographer knows what kind of pictures he wants to make, and the effects he is after, here are some of the things he should take into consideration to make his light behave:

● **REFLECTOR DIAMETER** (Fig. 1).

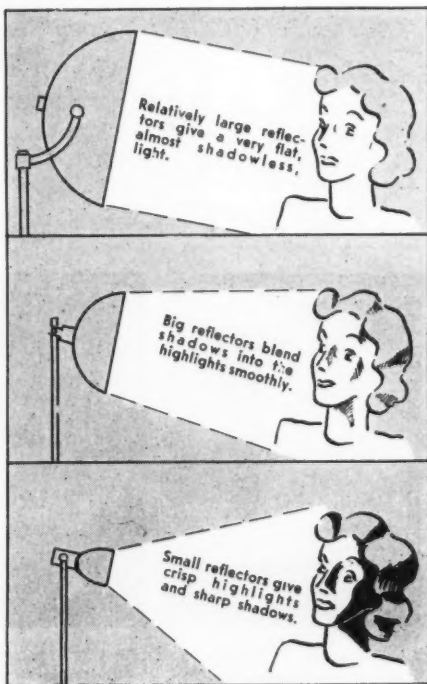
A big reflector will give a softer edge . . . blend shadows more smoothly into highlights than a small one. Extra large reflectors give a flat, almost shadowless light. Extra small reflectors give crisp highlights . . . sharp shadows. With a given lamp, a big reflector usually puts more total light in a useful direction than a small one, and does not appear so bright or dazzling to the subject's eyes.

The effect of a given lamp and reflector on a person will vary markedly with differences in the distance of the reflector from the person and the angle at which it is used. The three distinct variations of effect resulting from changing the distance alone are illustrated in Fig. 2, 3 and 4.

● **VARIATIONS IN COVERAGE WITH DISTANCE:** (Fig. 2). The far-

ther a lamp in a reflector is moved back from a subject, the greater the area over which the light is spread. A reflector which puts most of its light in a 30 degree zone will just about cover an object 2½ feet tall at a distance of 5 feet . . . but at a distance of ten feet, it will cover an object twice as tall . . . or 5 feet high.

● **VARIATIONS OF BRIGHTNESS WITH DISTANCE:** (Fig. 9). The farther away lamp and reflector are from the subject, the more exposure is required to get the picture. Though repeated often enough, the law that light varies



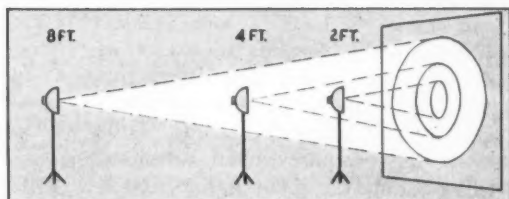
BEHAVE

PRINCIPLES OF REFLECTOR DESIGN AND OPERATION

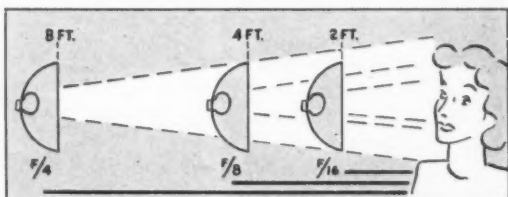
inversely with the square of the distance between the source and the subject is one that some photographers disregard with abandon. If you move the reflector and lamp so that they are twice as far away . . . you must give *two* full stops more exposure.

● **VARIATIONS OF MODELING WITH DISTANCE:** (Fig. 4). Modeling refers to the manner in which light and shadow are distributed over an object being photographed. If the camera position remains the same, moving our reflector light source nearer or farther changes the modeling. Close up, more light can get around to the sides of the object. The edges of the shadows, except with sharply directional reflectors, will be softer. Moving the reflector farther away has the practical effect of reducing its size . . . gives a crisper lighting . . . points up the highlights. Infinite variations of effect can be produced by changing the relative distance of camera and reflector with respect to the subject.

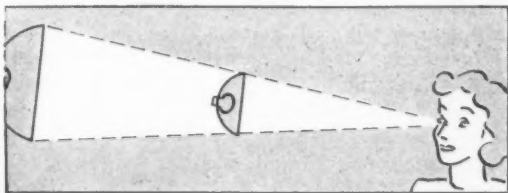
Many photographers allow for one or two of the effects of moving the lamp and reflector . . . but for controlled results, to make light truly behave, it is necessary to remember and allow for all three things: the distribution . . . the brightness . . . the modeling. All change at the same time, and not in the same degree. It is also important



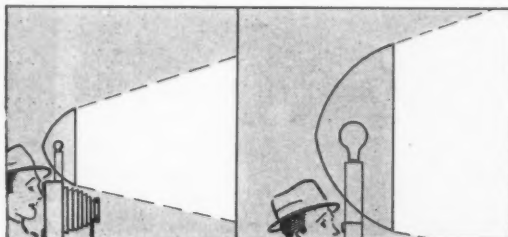
DISTANCE AND AREA COVERED. The further the reflector light source from the subject, the greater the area covered. Doubling the distance from light to subject doubles the height and width covered, illuminating four times the area. FIG. 2.



DISTANCE AND EXPOSURE. From Fig. 2, it can be seen that because doubling the distance quadruples the area covered, the exposure must be quadrupled. Open up two stops. FIG. 3.



DISTANCE AND MODELING. The modeling which a light source produces depends on the size of the reflector and its distance. A reflector at a given distance has the same modeling effect as another reflector, twice the size and twice the distance. Moving back the reflector has the practical effect of reducing its size insofar as modeling is concerned. FIG. 4.



REFLECTOR VS. LAMP SIZE. The ratio between lamp size and reflector size must be maintained for equal efficiency. The midjet flash lamp in a seven inch parabolic reflector sends out a beam of light which would require a 21-inch reflector for a 3-inch lamp. FIG. 5.

ant to remember that the eye is not a good judge of these effects. It can judge modeling fairly well, with experience, from the camera position or through a blue viewing glass, but it fails severely in judging brightness and distance.

The use of an exposure meter to measure brightness is strongly recommended. If no meter is used, a tape measure will substitute to measure the exact distance between subject and reflector as a basis for data to be entered into a carefully kept exposure record. Using any of the exposure guides distributed free by the makers of lamps, film, and reflectors as a starting point, your results will determine any desired variations for the particular lamps, film, reflectors, negative and print processing, and subjects that you use.

It is particularly important to realize that no printed exposure guide can be exactly right for the individual photographer, except by accident, because of the wide variation in the efficiency of reflectors . . . without taking into account all of the other variables that may enter into one particular way of taking pictures with individual equipment. Now let's consider some additional factors:

● **LAMP SIZE.** (Fig. 5). The tiniest possible lamp (theoretically a pin point source) is the best lamp for controlling the distribution of light in a reflector. Photographic lamps are large. That's why different sized reflectors must be used to get a given effective distribution from different sized photoflash and photoflood lamps. That's why different sized lamps cannot be interchanged in the same reflector with complete success. If the lamp is too big for the reflector (even though centered) it will probably result in the light's being spread out more, with reduced brightness. If the lamp is too small for the reflector, any concentrating effect may be intensified, giving a central hot spot.

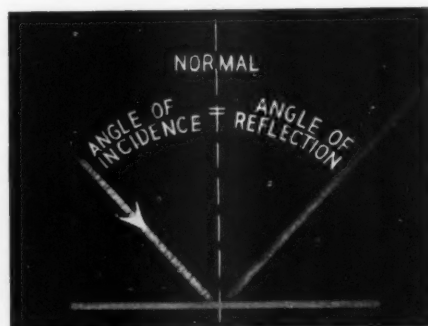
These considerations help explain some of the surprising results that have been had with midjet-type flash lamps (G.E.

5 or Wabash 25) in specially designed reflectors. Because the lamp has a bayonet base, it can be precisely held in accurately focused position in a parabolic reflector. Its reduced size allows enough control of its light for a seven inch reflector of proper shape and depth to gather much of its light and pack it within a thirty degree zone. This light will rifle out a hundred feet or more to get good pictures at synchronized shutter speeds of 1/200 of a second at reasonable stop openings on fast film.

● **REFLECTOR SHAPE.** A flat reflector simply bounces light forward distributing it over a 180-degree angle. Since most camera lenses cover approximately a 45-degree angle, three-fourths of the light then is wasted. Circular, bowl-shaped reflectors behave as shown in Fig. 7, giving a broad distribution of light. With small lamps, off focus, the distribution will vary at different distances from the reflector.

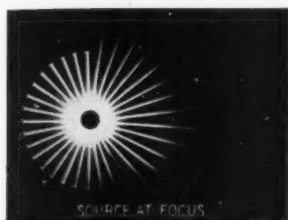
Parabolic reflectors, Fig 8, send the light rays forward in a parallel beam, if the light source is small enough and located at the focus. Accurate lamp position is important . . . particularly with small lamps. Moving the lamp forward or back with respect to the reflector, spreads or concentrates the light. Para-

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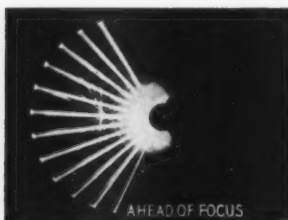


ALL REFLECTOR designs are based on an elementary law of physics. When a ray of light strikes a reflecting surface, the angle of the reflected ray is always equal to the angle of the light source.

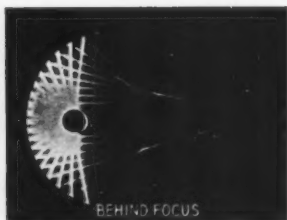
FIG. 6



SOURCE AT FOCUS



AHEAD OF FOCUS



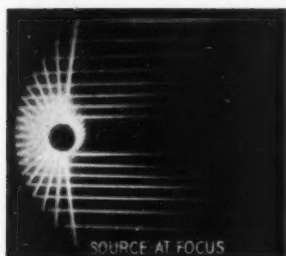
BEHIND FOCUS

CIRCULAR reflector with a light source at the center, reflects rays back through the light source, increasing the brightness of the emerging rays. The emerging light covers almost 180 degrees. This type of "bowl" reflector is used to cover wide areas.

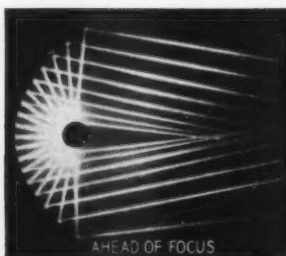
FIG. 7

WHEN THE light source is not centered, there is a great loss of efficiency. With the source ahead of focus, the rays reflect back and forth within the reflector area and very little illumination emerges. The black circle is the light source, a lamp covered with a slotted cap.

WHEN THE light source is behind focus, most of the rays reflect back and forth within the reflector area, but some rays are reflected in a narrow angle ahead. Note that the greatest brilliance is within the reflector and not in the emerging rays, indicating great inefficiency.



SOURCE AT FOCUS



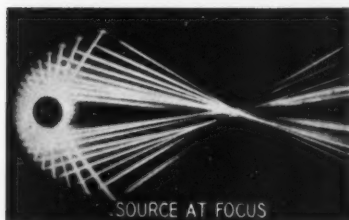
AHEAD OF FOCUS



BEHIND FOCUS

PARABOLIC reflector, with source properly placed at focus, reflects light straight ahead. This type of reflector is used in automobile headlamps, flashlights, and in some of the new reflectors which have been especially designed for use with the midjet type of flashlamp. **WHAT** happens when the light source is ahead of or behind focus is illustrated in the center and right-hand illustration.

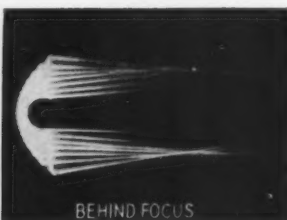
FIG. 8



SOURCE AT FOCUS



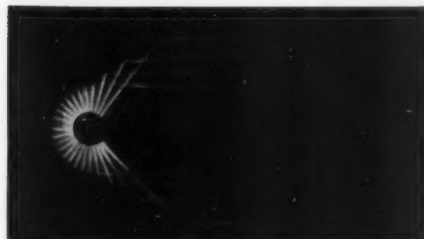
AHEAD OF FOCUS



BEHIND FOCUS

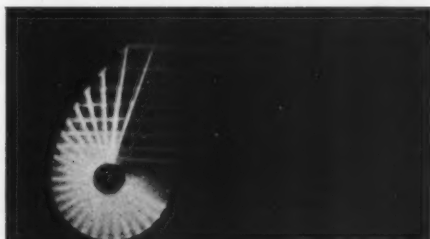
ELLIPTICAL reflector causes rays to converge then spread out. This type of reflector has its uses in illumination where "pinhole" lighting is used to send strong beams through small openings.

FIG. 9



SPHERICAL AND PARABOLIC reflector combined sends rays ahead in parallel beams.

FIG. 10



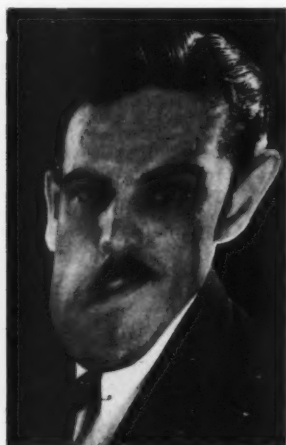
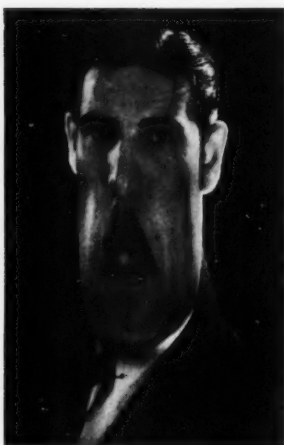
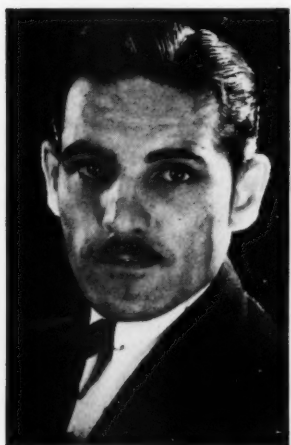
SPHERICAL AND PARABOLIC reflector, utilizing one instead of two parabolic elements.

FIG. 11

PAPER-BENDING FOR CARICATURES

OR "HOW TO ALIENATE YOUR FRIENDS"

WRITTEN AND ILLUSTRATED BY TRACY DIERS



A STRAIGHT PORTRAIT (left) is the basis for these caricatures produced by printing on sheets of paper bent in various ways. (Center) Curving the bottom part of the paper gives the subject a cavernous mouth, plug ugly ears, adds to his age and gives the face a strong resemblance to a block of wood. If the "victim" is like this in real life, you have made a successful caricature. (Right) Twisting the face around, in itself, is pointless; but if you exaggerate typical characteristics of the subject's personality you are a true caricaturist.



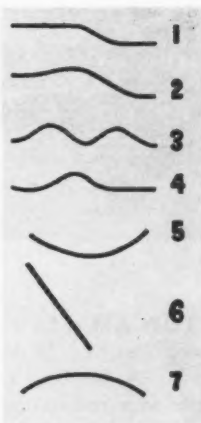
THE GIRL FRIEND POSES, little suspecting that...

YOU knew all the time she was out to get you.



←
HOW IT IS DONE. The enlarging paper is bent in various curves or angles. Push pins or thumb tacks hold the paper in position. FIG. 1

SUGGESTED WAYS of bending the sheet of enlarging paper are shown in cross section. FIG. 2
→



• HERE IS A WAY to picture irritating characters in "candid" truth or distorted caricature. Your own artistry determines the amount of "truth" injected into these "portraits."

Project an ordinary portrait negative on a piece of white paper on the easel (typing paper will work all right) and study the features. Lift the corners of the paper; bend it in the shape of a letter S; tilt it at an angle. Curve it concave or convex. Each change in the surface produces a

different caricature effect. Variations are shown in Fig. 6. When the final surface is determined, gently curve the actual printing paper in the same way.

As shown in Fig. 1, the paper is held in place with pushpins or thumb tacks. A piece of thick cardboard or soft plywood on the easel prevents the tacks from marring the working surface of the easel itself. The size of the paper must be large enough to permit trimming the evidence of thumbtacking from the finished print.

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(Left) STRAIGHT PRINT from portrait negative. (Below) CURVING PAPER as in Cross section No. 5 of Fig. 2 produces this plump face. (Right) CONCAVE CURVE in paper as in cross section No. 7 of Fig. 2, stretches the face like this.





SPEED- SHOOTING



DR. HAROLD E. EDGERTON kneels behind his still camera, ready to turn his dazzling 1/100,000-second flash on a Hollywood subject. "Stroboscope Speedlamp" is at right.

● **THE AMAZING** thing about super-speed shooting is that any camera may do it. A 98c Box Brownie can take pictures at a millionth of a second with the aid of a stroboscopic light. It's the light, not the camera that counts.

It even can be accomplished in color. The action of humming birds frozen at 1/100,000 of a second was reproduced on MINICAM's October cover from a 35 mm. Kodachrome. Motion pictures, however, present new problems.

It remained for Pete Smith, the jocular "Voice" in Metro-Goldwyn-Mayer's Specialty short subjects, to devote an entire motion picture to the subject of fast action slowed down so everyone could observe it in actual motion. Except for a sequence explaining the principle and operation of the Stroboscope, the film, "Quicker'n A Wink", pictures extremely fast action which is then slowed down for observation.

One of the sequences depicts a bullet shattering a light bulb, plainly showing the flight, entry and exit of the bullet and also what happens to the glass when it bursts. Another sequence shows how a golf club is distorted when it smacks the ball. Following this is a shot showing the golf ball boring its way through the pages of a thick telephone book. One scene shows a football placement kick. Clearly and sharply it shows that the toe of the kicker goes halfway into the pigskin before the ball leaves the ground.

Humming birds, flapping their wings at the incredible speed of fifty times a second are photographed with every flap clearly discernible. Other scenes reveal

how a cat laps milk, in which process it is discovered that the milk is carried into the mouth on the bottom instead of the top of the tongue; what happens to a soap bubble when it is pricked with a pencil, and what goes on when a dentist drills a tooth.

An explanation of this magical photographic process is offered by Dr. Harold Edgerton who, in association with Kenneth J. Germeshausen and Herbert Grier invented the Stroboscope in the laboratories of the Massachusetts Institute of Technology, where Gjon Mili (MINICAM PHOTOGRAPHY, May, 1940, page 18) studied under him. Dr. Edgerton, whose book "Flash," on Stroboscopic still photography is a current best-seller, explains that the Stroboscope is operated in conjunction with a special camera to make Stroboscopic motion pictures. The light is created in a tube filled with argon gas which, when electric current is passed through it, becomes brilliantly luminous. The electricity, fed in brief impulses can cause the light to flash as many as 2000 times a second or as slowly as ten times a second, according to variable adjustment.

The movie camera has no shutter nor intermittent motion. The film runs through continuously at speeds up to 2,000 frames per second. The highest speed used in this picture was about 1,500 frames per second (about 125 feet of film). A single loading, which can be as much as 160 feet of film, goes through the camera for each picture. At maximum speed the film goes through the camera in less than two seconds.

GETS INTO THE MOVIES

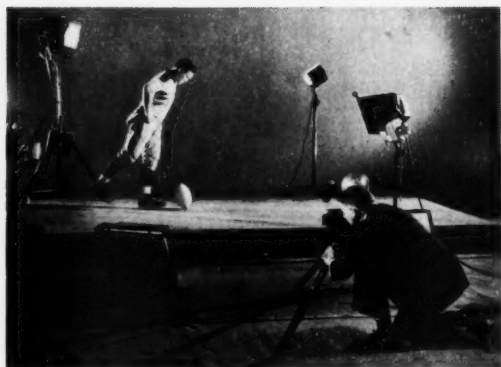
HOW STROBOSCOPIC LIGHTS AND 1/500,000 OF A SECOND EXPOSURES BRING NEVER-BEFORE-SEEN DETAILS TO THE SCREEN



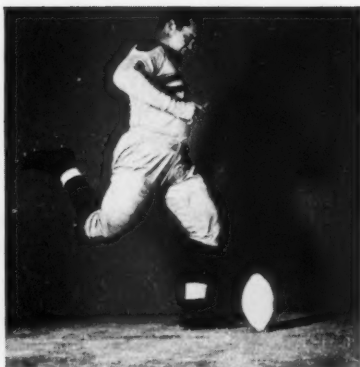
Stroboscope's Analysis of forward somersault:

1. **STARTING JUMP** of June Preisser's Forward Somersault begins with upward swing of left leg. Her right foot provides the spring for completing her spin.
2. **THE TAKE-OFF.** Left foot is swung forward to balance her spinning body.
3. **IN MID-AIR.** Halfway through the somersault, June does a "split" which appears to defy the law of gravity.
4. **THE LANDING.** June brings her left leg down to the floor. Extended right leg's impetus helps maintain balance.
5. **COMPLETION** of somersault. June snaps her head forward to regain her balance after both feet are firmly planted on the floor.





TO SHOOT A PLACE KICK at $1/1500$ of a second under regular studio illumination, the battery of five lights shown in this illustration was needed. Even at this speed the result was blurred.



TEX HARRIS takes a running start to boot the ball out of the studio for the $1/1500$ -second exposure. This pose, with the leg at the end of its back swing, is easily stopped without the aid of the stroboscopic light.

THE $1/1500$ -second exposure fails to stop the action. As a result the fast-moving kicking foot and the ball register as blurred images.



The Ordinary
shot, exposure:
 $1/1500$ second.

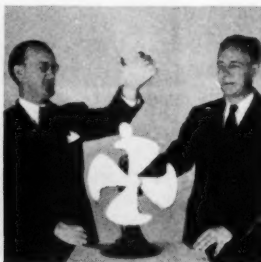
Stroboscopic
shot, exposure:
 $1/100,000$ sec.



THE STROBOSCOPE flash shot stops all movement at the moment of impact even though the kicking foot is at top speed.



THE MOVIE CAMERA FOR use with the stroboscopic light has no shutter or intermittent motion, film runs through continuously. A single loading of film (up to 160 feet) goes through the camera in less than a second and a half at the camera's top speed of 2000 frames per second.



ORDINARY HOUSEHOLD FAN revolving at high speed appears motionless when photographed under the Stroboscope. Pete Smith (left) drops an egg into the fan blades for his Metro-Goldwyn motion picture short "Quicker'n A Wink".



A SPLIT SECOND later Pete Smith's "egg-beater" smashes the egg into a thousand juicy fragments. At right Dr. Edgerton gets more than his share of the experimental data. Short distance the fan blades have moved between the two exposures show how rapid was the exposure speed.

(Top) AN ORDINARY soap bubble doesn't break when stabbed by a pencil. These Stroboscopic pictures prove this. June Preisser makes the experiment. (Center) JABBED MORE than an inch into the bubble, the pencil fails to break the film of soap. It is a different story when the pencil is withdrawn. (Bottom) AT THE FIRST movement to withdraw the pencil, the film breaks, destroying the bubble. Irregular light line beneath the pencil in this picture is all that remains of fast-vanishing bubble.

The whole trick is in the special sprockets that pull the film past the lens. These sprockets are equipped with a "contactor" that synchronizes the flashes of light from the Stroboscopes with the movement of the film. This eliminates the need for a shutter on the camera, because every time the light flashes an exposure is made on a new section of film that has just been pulled into position behind the lens. This device permits exposing as many as 2,000 separate sections of the motion picture film in a single second, using each of the 2,000 separate flashes in the lamp.

Since each frame is one separate picture, it means that a simple motion requiring one tenth of a second—say a bursting soap bubble is broken up into 200 separate pictures. Now, when the film is projected onto the screen it runs through the projector at the rate of only 24 frames per second, which means that the motion filmed in one-tenth second would take approximately 83 times as long to project. The result on the screen is high-speed motion made slower than Stepin Fetchit.

To demonstrate how the Stroboscope is effectively used in industry, Dr. Edgerton starts an electric fan, then faces the Stroboscopic light toward it, adjusting the "flicker" of the light to the number of revolutions per second at which the fan is turning. The blades then appear stationary. To prove that they are turning, an egg is dropped into them and it splatters all over the room. Engineers use the light in this manner, it is learned, to observe the action of high-speed machines, also to determine their speed, since there is a dial on the Stroboscope indicating exactly how fast the light is flashing when it is synchronized with moving machinery.

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★ CINECAM QUIZ

A PRIMER ON MOVIE-MAKING

CHECK EACH STATEMENT AS "TRUE" OR "FALSE". THEN SEE ANSWERS ON NEXT PAGE

HOW IS YOUR knowledge of amateur movies? What do you know about movie tricks, filter filming, editing, titling and projection? Here's a cinematic Askit-Basket, Dr. I. Q., Professor Quiz, and an Information Please all rolled up into one. Try these True-False questions on yourself, friends and cine club members.

1. Duplicate prints cannot be made from original movie film. TRUE? FALSE?
2. A winter scene with snow requires about the same exposure as a summer beach scene. TRUE? FALSE?
3. Reverse action results from turning camera upside down when filming. TRUE? FALSE?
4. To make silhouettes, set the diaphragm opening to suit the darkest part of the picture and deliberately overexpose the lighter parts. TRUE? FALSE?
5. There are exactly 100 feet of film on one spool of unexposed 16 mm. film. TRUE? FALSE?
6. Enlargements cannot be made from amateur movie film. TRUE? FALSE?
7. Processed Kodachrome film should always be humidified in storage. TRUE? FALSE?
8. When using a wide angle lens, all objects are larger than with a standard lens at the same distance. TRUE? FALSE?
9. To film pictures of objects reflected in a mirror with a focusing lens, measure the distance from lens to mirror. TRUE? FALSE?
10. Exposure meter readings *always* should be made from camera position. TRUE? FALSE?
11. If movie film is wound loosely on a reel, you must always take the end and cinch it up tight to keep the film from warping. TRUE? FALSE?
12. Eastman 8mm. film is 16mm. wide when running through the camera. TRUE? FALSE?
13. 8mm. film runs through the camera at 1 foot every 5 seconds at normal speed. TRUE? FALSE?
14. Twenty-five feet of double-eight film, after processing, is equal in running time to 50 feet of 16 mm. film. TRUE? FALSE?
15. Processed film is film that has been changed from a negative to a positive by chemical action. TRUE? FALSE?
16. 16mm. telephoto lenses magnify images in direct ratio to their focal length. E. g.: the 4-inch magnifies 4 times, the 6-inch six times, etc. TRUE? FALSE?
17. The 1½-inch telephoto for 8mm. magnifies the image 1½ times. TRUE? FALSE?
18. An f/1.9 lens will make pictures on darker days than the f/3.5 lens. TRUE? FALSE?
19. Telephoto lenses can be used for close-up work as well as distance. TRUE? FALSE?
20. When film projects dark on the screen, it means that too large a diaphragm opening was used. TRUE? FALSE?
21. Depth of field is affected by distance of subject from camera. TRUE? FALSE?
22. Depth of field is affected by the size of diaphragm opening. TRUE? FALSE?
23. 16 mm. and 8 mm. motion picture film are projected with emulsion side toward the projection lamp. TRUE? FALSE?
24. Kodachrome film can be duplicated in color. TRUE? FALSE?
25. In photographing with Kodachrome film when backlighting is used, open the lens aperture one stop larger than for the same scene with flat lighting. TRUE? FALSE?
26. A red filter can be used to obtain brilliant clouds on an extremely dark sky. TRUE? FALSE?
27. Positive film for titling is furnished on daylight loading spools. TRUE? FALSE?
28. Positive film for titling cannot be reversal developed. TRUE? FALSE?
29. A practical fade can be made by closing lens aperture down if light conditions call for an aperture of f/3.5 or larger. TRUE? FALSE?
30. Where there is no sustained action, each movie scene should be at least 10 seconds long. TRUE? FALSE?
31. Your movie camera should record action, not provide it. TRUE? FALSE?

COMPILED BY ARTHUR SCHWARTZ AND EDITED BY ORMAL I. SPRUNGMAN, CHARTER MEMBERS OF THE MINNEAPOLIS CINE CLUB

ANSWERS

1. FALSE.
 2. TRUE. The snow is whiter than sand, but the winter sun is weaker than the summer sun, thus evening things up.
 3. TRUE.
 4. FALSE. You expose for the lighter parts and underexpose darker parts.
 5. FALSE. Total length is 109 feet, including 4½ ft. leader at each end for loading and unloading.
 6. FALSE. Enlargements can be printed.
 7. FALSE. Dampness has a tendency to fade Kodachrome film.
 8. FALSE. A wide angle lens takes in a larger field and objects therefore appear relatively smaller.
 9. FALSE. Measure from object to mirror to lens.
 10. FALSE. Make meter readings from a distance no greater than width of subject. Close-ups should be metered from a distance not over a foot.
 11. FALSE. Cinching film produces scratches.
 12. TRUE. It is split at the developing laboratory.
 13. TRUE.
 14. FALSE. It is equal to 100 feet 16mm.
 15. TRUE.
 16. TRUE.
 17. FALSE. It magnifies the image three times, due to smaller film size.
 18. TRUE. Its larger diaphragm opening admits more light to film.
 19. TRUE. They are especially good for small objects—flowers, insects, etc.
 20. FALSE. It means the diaphragm opening was too small.
 21. TRUE. The farther away, the greater the depth of field.
 22. TRUE. The smaller the opening, the greater the depth.
 23. FALSE. Just the opposite.
 24. TRUE.
 25. FALSE. Backlighting calls for two stops larger, sidelighting one stop.
 26. TRUE.
 27. FALSE. It must be spooled and loaded in a dark room. A safelight may be used.
 28. FALSE. If you do your own developing it can be reversed.
 29. TRUE.
 30. TRUE. If less, it disappears from screen before audience analyzes it.
 31. TRUE. Don't panorm unless absolutely necessary.
 32. TRUE. The film is very sensitive, and must not be loaded even in ordinary shade.
 33. TRUE. It is a 4X filter.
 34. FALSE. It darkens it more, offering better distance on a hazy day.
 35. FALSE. The Type A outdoor filter should be used.
 36. FALSE. With the proper filter, it can be used.
 37. TRUE. Flares are available which burn from ½ to 4 minutes.
 38. TRUE. Insert them in the titler frame as with title making.
 39. TRUE. Otherwise the right and left sides of scene would be reversed.
 40. TRUE. Emulsion on opposite sides of base throws projector out of focus.
 41. FALSE. If water comes in contact with gelatin in filter, it will cause it to swell and separate glasses.
 42. FALSE. There are 40 frames to each 16mm. foot.
 43. TRUE.
 44. FALSE. It should be set for shade.
 45. TRUE. By half stops, we mean half way between diaphragm numbers.
 46. FALSE. Black does not reflect as much light as white, etc.
 47. TRUE.
 48. TRUE.
 49. FALSE. Nearby subjects should never be panned, distant ones very slowly.
 50. FALSE. Oil the projector regularly, a drop or two in each oil hole.
 51. TRUE.
 52. TRUE. A red filter gives sunsets a moonlight effect by darkening sky.
 53. TRUE. Otherwise, overexposure would result even though you stopped down your lens to f16.
 54. FALSE. Both are the same speed.
 55. TRUE. It gives all effects obtained with yellow, green and red filters.
 56. FALSE. Night effects can be obtained with pola screen and red filter.
 57. TRUE. Maximum effect is obtained when sun's rays are at an angle of 90 degrees to the camera.
 58. TRUE. Instead of using f11, open lens to f5.6, for instance.
 59. FALSE. Engine heat and summer sun may ruin your films, filter and camera.
32. Super-XX film should always be loaded in very subdued light. TRUE? FALSE?
 33. When using a red A filter, the diaphragm opening should be two stops larger with panchromatic film. TRUE? FALSE?
 34. A red filter does not darken the sky as much as a yellow filter. TRUE? FALSE?
 35. When using Type A Kodachrome for outdoor scenes, it is not desirable to use a filter. TRUE? FALSE?
 36. Outdoor Kodachrome cannot be used indoors satisfactorily. TRUE? FALSE?
 37. Magnesium flares can be used successfully outdoors where no other light source is available. TRUE? FALSE?
 38. You can photograph snapshots and colored postcards on movie film with a cine-titler. TRUE? FALSE?
 39. When splicing duplicate film into original films the emulsion sides should be away from each other. TRUE? FALSE?
 40. When running film consisting of original and duplicates spliced together, it is necessary to change focus of projector. TRUE? FALSE?
 41. If a filter becomes so dirty that it cannot be cleaned with lens tissue, use soap and water. TRUE? FALSE?
 42. There are 60 individual frames on each foot of 16mm. film. TRUE? FALSE?
 43. A faster film shows slightly more grain than a slow film. TRUE? FALSE?
 44. When photographing from sunshine into shade, the camera diaphragm should be set for sunshine. TRUE? FALSE?
 45. When exposing Kodachrome film, it is very often necessary to use half stops on your lens diaphragm to get perfectly accurate exposure. TRUE? FALSE?
 46. All objects reflect the same amount of light under the same type of sky. TRUE? FALSE?
 47. There are 80 individual frames on each foot of 8 mm. film. TRUE? FALSE?
 48. An f1.9 lens admits more than three times as much light as f3.5. TRUE? FALSE?
 49. If you must pan, it is better to pan nearby subjects than distant ones. TRUE? FALSE?

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ROBERT CAPA, on a tank behind the lines, holds the camera that has seen as much and more of danger and sudden death than any armed or uniformed fighter.

**BY
ALEXANDER KING**

THE WORLD is watching the war in the Orient. Capa's best pictures show the effect of the conflict on civilians as well as soldiers. This startling shot, taken during one of the first air battles over Hankow, shows how men look when their future fate is being decided in the screaming skies above them.



● **ROBERT CAPA**, greatest living war photographer, is now in the United States. Grudgingly, among his intimates, he explains his presence here by saying, "The War is not yet photogenic." If this seems a calloused or cynical attitude, you must remember that Capa for four years has been involved in the frightful actions in China and Spain, and that his photographs were invariably taken among the dying and the dead.

Capa's work proves one interesting point: modern action photography is exempt from the ordinary rules of picture making. His prints, hastily made under dangerous conditions are inestimably enhanced by the fact that they are frequently out of focus, over or under-exposed, and the drama which they record is authenticated because no one would expect that a cameraman so blatantly in the midst of jeopardy could take time for

GREAT *WAR* PICTURES

DESPITE BURSTING BOMBS FROM THE AEGEAN SEA TO THE BURMA ROAD, THE WORK OF ROBERT CAPA REMAINS UNSURPASSED



the niceties of photo-decorum. In other words, some of the best photographers are bad photographers in the interest of a purpose higher than careful composition and correct lighting. That is my opinion.

When a hundred airplanes fought a duel unto death over Hankow, Capa raced through the streets and photographed the effects of this event as it was mirrored in the anxious faces of the population. The picture above is ten times more convincing

as a document of war in progress than any deliberately cunning arrangement distributed by the news services.

● AS AN EXPONENT of the miniature camera, Robert Capa seems to me to have used this wonderful little machine with far more reason and logic than anyone else in our time. It can be logically argued that the use of this tiny instrument for the purposes of salon photography

amounts to the rankest affectation. After all, documentation of static subjects can be happily achieved and more conveniently contrived by the use of a larger type camera.

Pictures taken on the wing, that is to say sporting events, nightclub and theatre shots, make the use of miniature cameras efficient and desirable. But most of all the camera employed in war ought to be an instrument so casual and uncumber-some that it would leave the operator free to move about. Capa uses both the Leica and Contax. In showing the results of the bombardment of Hankow, perched precariously on ladders and staggering half-blinded through smoke-filled streets, he perpetuated for the amazement and consternation of the civilized world the ravages of modern warfare.

● MY FAVORITE prints from the war in Spain, seen on the facing page, demonstrate that perhaps there are camera achievements which are beyond the reach of precaution and poise. In the upper print, the explosion of the bomb on the left vibrated not only the apparatus but the cameraman as well. It is Capa's happy faculty to sacrifice technique to shock. Out of the hundreds of gruesome pictures we have seen, which have come to us from the various battlefields in the last twenty-five years, only a very few were able to capture the dreadful imminence of danger to the photographer.

The great Steichen has very intelligently observed, somewhere, that a new type of photo direction might be exploited by men who were as ready to cast technique overboard, as modern painters had managed to forget the dicta of the academies. He felt as I feel, that the special quality of adventure requires a special attitude from the photographer. Reportage under conditions of unusual terror gains nothing by careful focusing and elimination of seemingly superfluous detail except the suspicion that the picture was deliberately faked. The operator's anxiety, the unpredictable shaping of destiny before his

"THE dreadful imminence of danger" was captured here when a bomb explosion vibrated the camera. Alexander King contends that the best war pictures are likely to be bad pictures technically.



eyes ought, for the sake of greater verity, to appear in the final print.

Capa was born 26 years ago in Hungary, and from his earliest childhood lead something of a globe-trotting existence. His first camera was a Brownie which was presented to him by a doting uncle, and since the age of 14 he cannot recall ever having been without some sort of photographic apparatus.

European picture editors have for years been hospitable to new and occasionally incoherent talents in the knowledge that a certain difference in pattern was established by photographs in which the personality of the cameraman was able to assert itself. That is to say, experiments with photo-montage, double-exposures, etc., of which an American editor would ordinarily be frightened, are freely used in magazines like *Vu*, *Ce Soir*, and the many photo-magazines published in Germany.

● YOUNG CAPA graduated through all the stages of these experiments and for 2 years he fancied himself as a salon photographer. In 1935 he became thoroughly wearied by his own expertness as a mere photo-technician and devoted himself exclusively to documentation and reportage. He understood at once that this new step in his career necessitated a break with the system and tradition of his photographic past. He realized that if he were to delineate the haunted, troubled world in its varying stages of decomposition he could hardly succeed by employing the methods of fashion photography.

Since Subject with him was certain to have profound literary connotation it became essential that the photo-mechanic develop into a moving and creative pic-

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(LOWER picture). "The Rescue" is one of Capa's famous war pictures taken under fire when the cameraman's danger to life and limb was equal to that of the soldiers in the front line trenches.





MIDDLE-GRAY background produced here by having both subject and background in shade. Suited to subjects with large areas of light and dark. FIG. 1



SKY BACKGROUND produced by yellow filter that yields middle-gray tone. Direct sunlight on subject gives bold modeling of face, a poster effect. FIG. 2



ARCHITECTURAL background adds a touch of atmosphere. The dark areas in this background draw the eye away from the main interest in the picture. FIG. 3

★ THE BACKGROUND COMES FIRST ★

BY RALPH HABURTON — ILLUSTRATED BY THE AUTHOR

● WHEN WE LOOK AT A CAMERA subject, whether it be a lake, a tree or a pretty girl, our attention focuses on our center of interest, separating it from the rest of the scene. When our camera looks at the subject, however, its vision is without benefit of mental concentration. It can't think.

The photographer, therefore, does the thinking, and the first step, *before even opening the camera*, is to look around and select a background. It may be sky, water, beach, trees, buildings, etc. Natural backgrounds can't be moved around, neither can the sun, so the available backgrounds at any one time and place are limited by the direction of the lighting.

The essential point is to have adequate contrast between the two, so that not only

the eye, but also the *film*, can clearly distinguish the subject from its surroundings. In addition, the background should be harmonious and suitable for the subject, not distracting.

Fig. 2, made with a light green (X-1) filter and panchromatic film rendered the blue sky an attractive middle gray value.

Architectural features, when they are of harmonious shape, can emphasize or contrast with, the pose of the model. In Fig. 4 the curve of the model's hat is repeated in the curves of the stone jar that is part of the background. In Fig. 5 the angular pose of the model is set against the angle of the steps on which she reclines.

Take time out to study the background before making your next exposure.



REPEAT background gives rhythm to picture by echoing lines of the subject as in this case in which the stone ornament repeats curve of the hat. FIG. 4



DIAGONALS in background produce strong composition. The angle of the steps balances the angles produced by the model's body. FIG. 5



WHAT not to do. Head-on view of the steps in this background produces a monotonous and distracting effect. Fig. 5 is much stronger. FIG. 6

SHADOW provides accents on gray background (left). FIG. 7



TREE backgrounds are notoriously difficult. In this picture the action of the subject harmonizes with tree branch and leaf background. FIG. 8



SUNLIGHT on background of foliage or grass with subject in shade produces extremely white, blank background seldom pleasing (below). FIG. 9



UNFILTERED SKY background behind backlit figure tends to lose the outline of the subject, producing displeasing effect. FIG. 10



DARK background with brightly lighted subject is the most satisfactory solution when avoidance of background detail is desired. FIG. 11



★ *Seven Types of Women* ★

OUR DREAM GIRL IDEAS AND HOW THEY SHOW UP IN PICTURES

● **LET IT BE SAID**, at once, that my personal predilections in photography have nothing whatever to do with women. Turn me loose among unfinished skyscrapers, junk yards, water fronts, forests or merely the nearest weed patch, and I'll happily burn up film. But don't ask me, photographically, to do right by anybody's Nell.

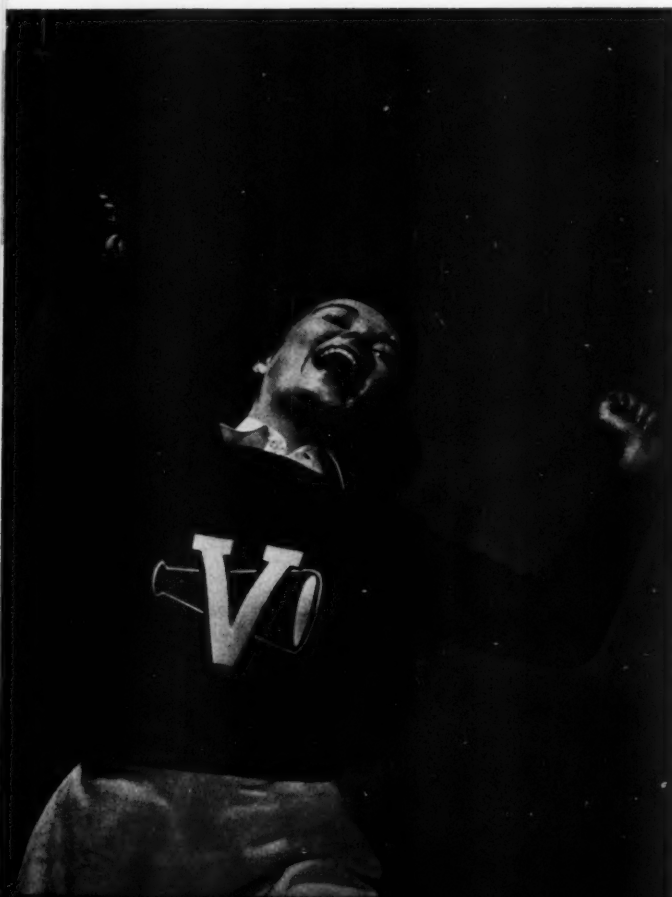
Maybe it's a hangover of chivalry in me; possibly I respect the ladies so highly that I shrink from doing them an injus-

tice. (And maybe you think my camera can't turn out injustices. Boy!) Whatever the reason, chivalrous or not, the only woman I've ever enjoyed picturing is my daughter. At the age of four she simply is too young to care. In another few years she'll force me to go back again to my weeds, skyscrapers and docks. And that will be that.

But there are other photographers, in fact practically all the other photographers in the world, who look on woman-

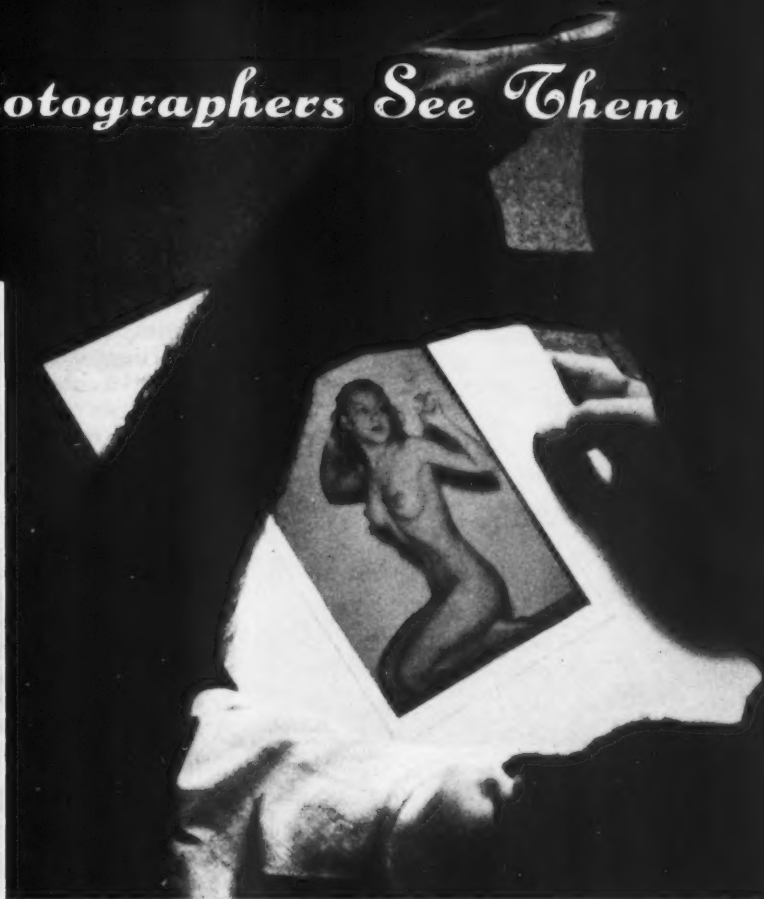
BY
**CLAYTON
WOODMAN**

THE "GIRL FRIEND" type is best photographed candidly, or at least in action doing the things she likes best, whether eating a hot-dog or rioting at a local football game. —Picture by S. Wm. Tuck.



as Photographers See Them

THE WORLD'S favorite subject is guess what? Great artists of the past and snapshooters of the future—all have a common predilection for picturing girl friends and wives.—By R. J. Reynolds.



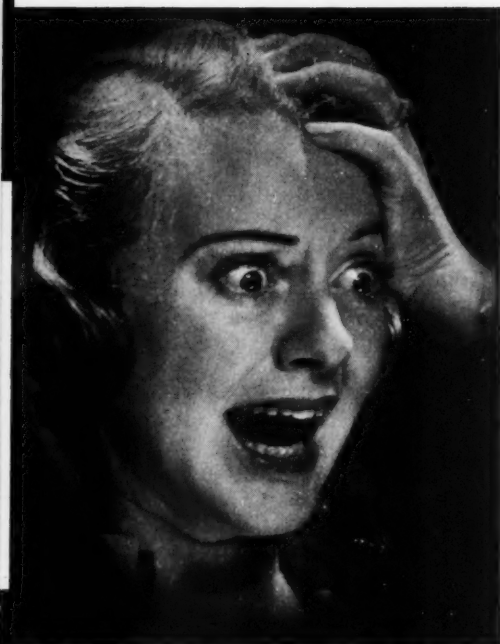
kind as the primary reason for photography. Hence, "Women, As We Photographers See Them" is no idle title. It represents the prime preoccupation of most cameraddicts. The fact that I am the microscopic minority automatically qualifies me for a coldly objective analysis of what my fellow photographers see in their female subjects.

● **THE GIRL FRIEND.** Everybody, even a photographer, has a girl friend. And next in importance to having such a friend is having a picture of her. If she okays the picture, it's proof (a) that she is indeed a friend and (b) that you are a photographer, or reasonable facsimile thereof.

Portraying the Girl Friend is ticklish business. Naturally, you want to picture

her as beautiful, charming, winsome, vital, good sport, companionable, a swell dresser, and an excellent judge of men. Up to the moment you train your camera on her, you've never noted that she has a freckle or two, a funny line along her nose, eyebrows that don't quite match, a tendency to scowl in strong light, and clothes that just miss being tapped for *Vogue*. Now indeed you're in trouble.

If you get fussy and try to fix her up with make-up and stuff, she accuses you of being dissatisfied with her. Or if you try to retouch the negative you've made, she's sure to spot it and bracket you among the lily gliders. But, if you show her a true and faithful portrait of herself, she may easily decide that she can get along very well without your insults. It's all very difficult.



THE EMOTERS love to portray heavy emotion.

BATHING GALS invariably assume they are cute.



The best way out, of course, is not to attempt a serious picture. Snapshoot her. Go amateur in a big way. Appeal to her love of life and all its vagaries by shooting her as she nose-dives into a snow bank, as she daintily surrounds a Coney Island Red Hot, or as she emerges, slightly drowned, from the surf. Under those conditions, she and everyone else will marvel that she looks even remotely human. Her charm and beauty have triumphed over hideous handicaps. You have proved yourself a photographer and a gentleman by thus establishing her rare qualities. In short, you win.

Later on, if all goes well, the Girl Friend may permit you to go artistic, and pose her in accordance with the requirements of the standard salon print titles—Hope, Despair, Exultation, Hoyden, and so on. By that time, however, you'll not be making pictures of her as the Girl Friend; she will be aiding you in your art, and you can get away with murder.

Now let's look at some other women.

● **THE NUDE.** Looking at nudes has always been one of mankind's fundamental privileges and pleasures. Obviously, a photograph is a means of prolonging that pleasure, so photographs are made. I can recall hearing or reading some pretty fancy, aesthetic stuff about photographic nudes in which it was implied that nudes had to be approached with great delicacy and care, lest they become back-of-the-barn. Well, maybe so, maybe so.

I'm inclined to believe, however, that it's not so much a matter of delicacy and care as it is of judgment and hard work. For the human figure has a way of getting itself warped into the darndest postures; to produce a body portrait that looks anything like a healthy human being is really a job.

The model, of course, controls the situation until, and if, the photographer gains the upper hand. And the more experienced the model the easier it is for the photographer. Inexperienced models, thoroughly uncomfortable in their lack of raiment and an inner conviction that

they're being pretty wicked, have to be posed in some play-acting pose. This necessity, I am convinced, accounts for the vast number of painful nude portraits in which the model is imitating cheap statuary. It's the "Diana at the Pump" type of photography. I prefer a good, honest junk yard.

When the model is more experienced, less conscious of her nudity, then and only then can the photographer really get something done. He can forget the girl as a person and concentrate on getting the kind of picture he wants to make. Sometimes the photographer is himself addicted to the "Awake, My Soul" or three-ring-circus living statuary type of nude. In that event, the whole affair is bound to be kind of dismal. Better ignore it.

But say, this is supposed to be a treatise on women as the photographer sees them, not a dissertation on why I think nudes are funny. So, back to work.

There are some women, perfectly good models, too, who seem to inspire photographers with a yen to picture isolated portions of their anatomy—a knee, a shoulder, a breast, the spinal curve, and so on. This, unfortunately, breaks down into a kind of game, which ends with close-ups of sweat pores and hangnails. Still, it's an improvement over "Diana at the Pump."

● **BATHING GALS.** Oddly enough, the ladies who pose for bathing girl pictures are unlike those who pose for nudes. Bathing girls are, or assume that they are, cute; nudes are almost literally prohibited by law from being cute. What a whale of a difference a few square inches of cloth make!

Within the bathing girl class there is a major subdivision familiar, if not dear, to every photographer—the publicity gal. Publicity men are a notoriously sardonic lot, but they share one holy conviction—that all they need do to publicize anything at all, from a tractor to a tame typhoon, is to picture a bathing girl in, on, about, or merely pointing at the to-be-publicized product. Elaborate schemes, blood relatives to a Joe Cook door bell, are worked



THE NUDE. Photographers of this school tend to imitate statuary and their efforts meet with pretty good success in the salons. **DATA:** Defender Pan film, 1/10 second, f/5.6. Photo A. B. DeLaVergne. **THE CLOSEUP.** To some, a woman is an anatomical detail, best represented by a closeup of an arm, a breast or a spinal curve. Photo Dudley Lee.





CHARACTER STUFF. Give a gal a shawl and a cigaret and she will proceed to look like anything but herself. Photo Mrs. Robert Newby, A.R.P.S.
THE TIMID SOUL. Causes many a photographer to give up in despair. Photograph by A. W. Presse.



up, involving a lot of props, a "gag," and one or more bathing beauties. The minute such a set-up has been photographed it becomes a publicity picture and newspapers are swamped with copies thereof. It's a great business. Florida's recent revival has been engineered almost exclusively on the basis of bathing girl publicity photos. I wonder what Steve Hannagan (Florida's press agent) would do if Alaska lured him to promote Uncle Sam's Icebox as a resort? Fur bathing suits and Eskimo cuties? Probably.

● **CHARACTER STUFF.** One of the primary urges of photogenic women is to dress up and make up so that they look like anyone but themselves. This might be called the Orson Welles complex. Anyway, give such a gal a shawl and some low-key lighting, and she'll do you any of half a dozen or more "characters," from "Tenement Madonna" to "Dust Bowl Despair."

Add a cigaret to her equipment and right away you have "Gun Moll" or "Apache." It's very simple.

We've all met such ladies, and they're fun. Charades are fun, too.

● **THE EMOTERS.** A sub-group in the Orson Welles class embraces the ladies who love to act, to register emotion. Obviously it's much harder to register a mild than a strong emotion, so the strong emotions—horror, hysteria, panic, pain, and such—win.

One strong light, placed low, an empty background, and a rugged nervous system—such is the necessary equipment for work of this type. If you want to contribute to your model's emoting, it's perfectly permissible. But remember, you're a gentleman.

● **GLAMOUR GIRLS.** Just as every man is secretly convinced that he's something of a devil, every woman cherishes the notion that she's a potential glamour gal. All she needs is a sympathetic and appreciative photographer. It's probably a very good thing for the human race that this situation exists, but it's some-

times tough on the photographer. We can thank Hollywood for our trouble, too—Hollywood with its excess population of excessively beautiful dames.

Still, Hollywood's glamour is a pretty arbitrary article. It is not necessarily the only, the authentic stuff. In this fact lies your escape when you encounter a lass who wants you to glamourize her. Explain to her that she and Hedy Lamarr vibrate on different planes, that she and Hedy respond to totally different photographic treatment, and that glamour for her might be ghastly for Hedy. With that established, you can go to work. Happy landings.

• **THE TIMID SOULS.** Of all the lensable ladies, the toughest are the timid souls. It's not that they aren't attractive; their timidity is very often rooted in a fear that you won't do justice to their beauty, or that you won't discover it at all.

There are two ways of handling such a model. The first is to admit defeat, and take her to the movies. The second is to swear at her. Nothing impresses a timid model as much as well-placed profanity. It will work when gallantry, cajoling, pleading, praising, and soft music fail.

• **THIS BRIEF** catalog of women from the photographer's point of view has deliberately avoided a number of types. Conspicuously absent, up to this point, is the truly beautiful, simple, straightforward person. She is not easy to photograph, because simplicity and honesty are not flamboyant qualities. But there is no deeper photographic pleasure than capturing the true quality of a fine woman in a picture. Some of us may never achieve it. But it's worth a lot of trying.

Study your own prints and those of the master photographers, for a better understanding of your own, personal, point of view as well as theirs. Then consider this as your assignment: *Take a photograph that you will title: "WOMEN AS I SEE THEM."*



EMOTION can be created out of thin air—or no more than a handful of snow dropped on the unsuspecting eye of a young lady lying in the snow. DATA: Superpan Press film, 1/100. f/11. By Don Downie.

GLAMOUR GALS. Hollywood is to blame for this type, due mostly to an excess population of excessively beautiful dames. DATA: Agfa Finopan film, 1/2 sec. at f/8. Photo Maywald from Three Lions.



NOW'S THE TIME TO

WRITTEN AND ILLUSTRATED BY DENNIS ROGERS

● WHILE WATCHING an artist at work on a still life, once, I saw him load his brush with blue paint and apply a large smear of blue to what had been a yellow lemon. I expressed surprise.

"I put it there because it is there," he said, smiling. "You've just never bothered to notice it. As a matter of fact, I can see lots of color that you can't see," he added casually.

"Do you mean that I'm color blind?" I asked, my nose a trifle bent at the idea.

"In a sense, yes. Most people are color blind in that they have never learned to see color analytically. You never really appreciate good music, you know, until you have either listened to a great deal of it or learned to play some instrument."

Since I've done a great deal of color photography, I've realized the justice of that artist's remarks. Most of us are color blind, sad to say, but except in rare cases, it's an artistic rather than a pathological failing. You can acquire a much more

accurate color vision simply by training yourself to see color rather than taking it for granted. And it behooves every photographer to do so, because color film is on the way up. Most people have been taught that white is colorless. Lots of times this is far from true in color pictures.

● SUPPOSE, for instance, you make a color shot of your best gal in a white dress smack up against a green wall or green grass, as in Fig. 1. That will demonstrate to you how greenish "white" can be. When the transparency comes back, half of the dress will be pale green, and half of the face a bilious olive tone rather than the delicate pink that was so carefully applied.

The color transparency is perfectly accurate; the greenish cast is the result of "color bleeding." Watch someone about near some large brightly colored objects or surfaces. All their skin and white or light-colored clothing pick up reflections of the



COLOR BLEEDING results when colored surfaces, like grass, reflect light onto a subject. The above snapshot in color would have a greenish cast in the white dress and the delicate pink of the girl's face would appear greenish olive in tone. FIG. 1



INTRODUCING another reflecting surface, in this case a straw hat, is one method of control for color bleeding. Notice that the hat reflects enough light to illuminate the shadow side of the face. The hat, however, is not large enough to control the color rendition of the dress. FIG. 2

SHOOT IN COLOR

BUT, FIRST, FORGET WHAT YOU KNOW ABOUT BLACK AND WHITE PICTURE-TAKING—COLOR IS DIFFERENT



COLOR BLEEDING sometimes enhances a picture. To give a hint of color to a white sweater, for example, a pink reflecting cardboard might be used.

FIG. 3



IF THE SUBJECT'S hair lacks "zip" in the color transparency, shoot it again using a square of orange cardboard for the equivalent, in effect, of a henna rinse.

FIG. 4



SHOOTING IN COLOR is different. To center interest on a girl against a blue sky, what color sweater would you favor? The complementary color? Right! A yellow sweater establishes the girl as the center of interest against the blue sky.

FIG. 5



LIGHTING for color should be flat. In Fig. 5, too much of the face is in shadow. With the subject facing the light, as above, the illumination is more even. Although the eyes are still in shadow a white cardboard reflector will take care of that.

FIG. 6

surrounding colors, whatever they may be. If this idea is new, you will have to watch carefully because the eye is not a scientifically accurate instrument. You *know* that the girl's dress is white; therefore an untrained eye refuses to see the colors that are reflected in it. We say that the eye automatically compensates or adjusts for "color bleeding."

The deuce of it is that, while any observer's eyes compensates for actual subjects when they are seen among surroundings that produce "bleeding", these same observers are unable to adjust their eyes to any large amount of "color bleeding" in a photograph. This is probably because the picture is seen in a completely different environment from that in which the shot was made, and the necessary adjustment would be too radical.

At any rate, we all can see "color bleeding" in a picture, so a color photographer trains his eyes to see it *before* he makes the picture. Once anyone is aware of the problem, it becomes increasingly difficult for his eyes to fool him.

• **TO AVOID "COLOR BLEEDING"** find the source of the intruding color. Then either move the subject away from it or cover the offending surface with black cloth which reflects no color. In Fig. 2 a white straw hat has been placed near the face. This is the best method—control of the objects within the picture area and their relation to each other. Once in a while "color bleeding" enhances a picture. For instance, maybe our subject's sweater is, after all, too darned white. To give it a hint of color, a sort of mother-of-pearl effect, take two large showcards or blotters, one pale blue, the other pale rose. Prop them up, just outside the picture area, at an angle where the folds or shadow areas of the white sweater pick up a delicate blend of the two colors. Be careful to keep these reflected colors away from the face. Fig. 3 shows one card in use.

• **IF THE SUBJECT'S** hair looks dull and lifeless, place a square of orange showcard at an angle near the head so

that the hair picks up tawny glints—the photographic equivalent of a henna rinse. See Fig. 4. Exercise a great deal of restraint in intentionally introducing "color bleeding." It is a valuable part of the technique of color photography—but also the easiest to overdo.

Restraint is also the key to good color harmony, and is about the only law that can be laid down. For all the "rules" of color harmony, the aesthetics of color are vaguely defined. Beware of anyone who insists dogmatically that certain colors must be used together, that certain other color combinations are impossible. He is talking through his hat.

Here are some general rules that are useful in getting harmonious color combinations. Most outdoor natural scenes seem harmonious, doubtless because the mind has grown to accept nature's color as pleasing. Only when man-made colors come into the scene is a clash likely.

A combination of complementary colors (yellow and purple, red and green or orange and blue,) has a compelling attraction. A combination of analogous colors (yellow and orange, red and purple, turquoise and green,) may be pleasing in a quieter, more subtle way. Bright colors, such as orange, have more attention value than a low-brightness color like indigo, and this principle is widely observed in advertising.

Certain colors have distinctive mental associations. Red is often thought of as bold, deep blue as sad, pink as delicate or feminine, and so on. Those associations are important because they may establish the mood of a color picture. Carefully study the next technicolor movie you see for tips on how the wizards of Hollywood use this psychology of color to play upon your emotions.

In such a complex field as color the amateur is wise to keep his color combinations simple. Don't try to crowd every color in the spectrum into each picture. Work out a pleasing pattern that appeals to you, using fairly large areas of two or three basic colors. Even top-flight pro-

fessional color photographers seldom try to handle more than that.

● **IN COLOR PICTURES**, the “center of interest” can be established by color itself as well as by the use of directional lines and the placing of masses. For example, imagine we are shooting a color scene in which the “center of interest” is a girl posed against the blue sky. (Fig. 5, page 65.) If the girl is dressed in a gray or blue dress, her costume will harmonize well with the background but will not do much to help the composition. Put her in an orange-yellow dress and *presto*, the “center of interest” is immediately established by the use of a bold complementary harmony. No matter how arresting the clouds and surrounding landscape may be, the eye is inevitably drawn back to that complementary “bull’s-eye.”

The old ideas about depth-of-field have to be changed when making color shots. In black and white, it has been perfectly good practice to allow the background

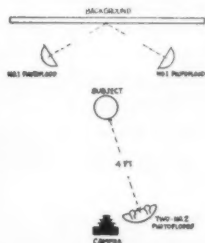
to go out of focus; it is often done intentionally to subordinate the background. Out-of-focus *objects* in a color transparency, however, look like blobs of dye accidentally spilled on the film. If the background can't be kept in focus, use a solid color background such as the sky, or a stucco wall.

● **IN LIGHTING** for Kodachrome, modeling is obtained in a different manner. With black-and-white film, the modeling or illusion of depth is usually obtained by a lighting that casts shadows. But color itself creates the illusion of depth, so that there is no need for cast shadows. Furthermore, deep shadows in color work are often objectionable because the color in the shadows is likely to go “out of balance.”

The lighting for many black-and-white pictures will show a light range of 20 to 1 from highlight to shadows. That is, the lightest parts are 20 times as bright as the darkest parts. Experienced workers with

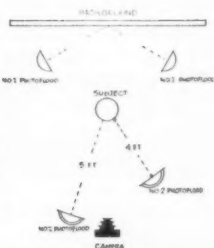
THE BASIC light. Two No. 2 flood lamps are used in one reflector as shown in the diagram, or in two reflectors as shown in the photograph below. Exposure, with Type A Kodachrome, for this setup is approximately 1/25 second at f/2.8.

FIG. 7



FOR A stronger type of lighting, one of the flood lamps is moved to a 45 degree angle. This requires about a half stop additional exposure, or approximately 1/25 second at f/2.5.

FIG. 8



color keep their light range within a ratio of 4 to 1. This range can be exceeded successfully in lighting a Kodachrome picture but it is a lot easier to get pleasing color rendition by keeping the lighting this "flat." In sunlight, front lighting will be within the 4 to 1 ratio.

For side-lighted or back-lighted shots of models or other relatively small subjects (not scenes), fill in the shadows with light from reflectors. White oilcloth makes a good reflector for portraits because it reflects a warm light that is flattering to the complexion. Aluminum reflectors can be used at a greater distance from the subjects, but light reflected from aluminum is colder in color. For large shadow areas, that cannot be handled adequately with reflectors, use a daylight-blue flash bulb synchronized with the shutter.

- **INDOORS**, with Type A Kodachrome and flood lamps, proper placing of the lights keeps the brightness range within the 4 to 1 ratio. For portraits, place two No. 2 Photoflood bulbs in reflectors about four feet from the subject's face and a little higher than the head. Place the lights together and close to the camera (Fig. 7, page 67). This is the basic light and the correct exposure will be about 1/25 at $f/2.8$.

If the background is several feet behind the subject (where it should be to prevent "color bleeding"), light it independently. Correct color rendering of the background requires that it receive the same intensity of light as the subject. Two No. 1 flood lamps are thrown on the background and moved back and forth until the light is of the right intensity. An exposure meter is the best check for balancing the background light against the basic light. When balanced, the background light does *not* affect the exposure for the subject.

The above set-up produces excellent color portraits. To add further touches to the lighting, use one or two backlights to give life and sparkle to the hair. Place these lights a foot or two above the subject and behind, and direct them so that very little such light spills over onto the

front of the subject. Be careful not to exceed the 4 to 1 ratio if you do use these backlights. These accessory lights when correctly placed do not materially affect the exposure.

For a stronger type of lighting, the basic unit of two No. 2 Photofloods is split up, as in Fig. 8. Use one light at a 45° angle to the subject at four feet, and the other as a balancing light at the camera axis at five feet. This is similar to a standard black-and-white lighting but much flatter. Such lighting requires about a half-stop more exposure, or about 1/25 at $f/2.5$.

- **IN color portraiture**, always subordinate the background to the subject. This means using a background color that is less intense than the subject color. That's why pastel backgrounds are seen so often in good color portraits.

The same idea holds for clothing too. Subordinate the color of the costume to the subject's face. A picture of a girl in a brilliant red dress with gold ornaments against an emerald green background might be a striking and effective color composition, but it would not be a good portrait of the girl. But if she were to wear a soft pink dress against a light gray-blue background, the face would gain center stage without having to fight for it.

If you are using Type B cut sheet Kodachrome, the same methods of lighting apply except that bulbs of a 3200° Kelvin temperature are substituted for Photofloods. The 500-watt T-20 is probably the most convenient bulb of this type for home use. Then, when ready to shoot, replace the service bulbs with flash bulbs. For color work, always open the shutter on "bulb," fire the flash and close the shutter, to get the whole flash to register on the film.

More on the use of flash for color photography will follow in an early issue of MINICAM. In the meantime, let's see what you can do in the way of taking a roll of outdoor Kodachrome shots, and perhaps a roll of indoor type color film, too. The worst that can be said for color pictures is that they dim our appreciation of black and whites. They're that good!



A CANDID camera fan himself, young King Ananda of Siam (Thailand) is fond of turning the tables on photographers and "shooting the news shooters."



THE KING has a fleet of toy ships. His country wishes it were a real fleet. Because it is not, Siam has just been virtually taken over, politically, by Japan.

THE PHOTOGRAPHER IS A KING

YOUNG KING ANANDA, OF SIAM, CANDID CAMERA FAN, SHOOTS NAVAL SCENES IN MINIATURE



"BATTLESHIP AT SEA" is a table-top ship double-printed on a real ocean scene.

● THE KING of Siam likes to take pictures and his favorite subject is ships. Ships at sea and ships on table tops are

all the same to young King Ananda. Only 17 years old, he was attending prep school at Lausanne, Switzerland, when these snapshots were made.

But paper fleets and fighting fleets are not identical when it comes to power politics in the orient today. Superiority in the latter category has allowed Japan to sweep down into Siam's next-door neighbor, French Indo China, and threaten little Siam.

Learning how to be a king is no easy job, especially when the kingdom in question is being made a pawn in power politics and ground between the millstones of opposing forces. But the best training a king, or anyone, can get is experience with modern machines, like ships and a camera.

PHOTO DATA

CLIP SHEET FOR PERMANENT REFERENCE

T-SQUARE SOLUTION DILUTING CHART

The following handy diagram will make it easy to figure dilution of solutions whose percentages are known:

%S minus **%N** equals **Parts D**

m
i
n
u
s

%D

e
q
u
a
l
s

Parts S

Where **%S**=Original solution strength in percent

%N=New solution strength, or the one desired

Parts S=Parts of original solution (oz., cc., etc.)

%D=Diluting solution strength in percent

Parts D=Parts of diluting solution required (oz., cc., etc.)

When water is used for D, its percentage strength is zero.

Example 1—To make 28% acetic acid from glacial (100%) acetic:

$$100 - 28 = 72 \text{ parts water}$$

o
||

28 parts glacial acid

(Roughly, 3 parts acid to 8 parts water)

Example 2—To dilute 95% alcohol with 30% alcohol to make 70% alcohol:

$$95 - 70 = 25 \text{ parts } 30\%$$

30
||

40 parts 95%

(Or, 5 parts 30% and 8 parts 95% alcohol mixed together form a 70% solution.)

COMMON NEGATIVE SIZES, AND DIAGONALS

When contemplating the purchase of a camera, or comparing negative sizes for any other reason, the following tabulation will be of help. Included are the diagonals of standard negatives (the distance from one corner to the opposite corner). This dimension is useful mainly in contact printing and, to some extent, in enlarger designing. As a general rule, a lamp, to illuminate a negative uniformly, must be at least as far away as the diagonal of the negative. Thus, to make a contact print from a 4 x 5-in. negative, hold the printing frame no closer than about 6½ in. to the light source, or use a printing box whose lamp is 6 in. from the negative. If a diffusion medium, like opal glass is used, measure the distance, not from the lamp, but from the opal glass.

NEGATIVE SIZE		DIAGONAL	
Inches	Centimeters	Inches	Centimeters
¾ x 1 (35mm. "Single-frame" size)	1.9 x 2.5	1.25	3.2
1 x 1½ (Leica, Contax, etc. neg., approx.)	2.4 x 3.8	1.8	4.5
1.2 x 1.6	3 x 4	2	5
1½ x 2½ ("Vest-pocket" negative size)	4 x 6.3	3	7.5
1½ x 2¼ ("Shortened" vest-pocket)	4 x 5.7	2.8	7
2¼ x 2¼	5.7 x 5.7	3.2	8.1
2¼ x 3¼	5.7 x 8.25	3.9	9.9
2½ x 4¼	6.3 x 10.8	4.9	12.5
3¼ x 4¼	8.25 x 10.8	5.3	13.5
3¼ x 5½ (Post-card size)	8.25 x 14	6.4	16.3
3½ x 4¾	9 x 12	5.9	15
4 x 5	10 x 12.7	6.4	16.2
4 x 6	10 x 15.3	7.2	18.3
5 x 7	12.7 x 17.8	8.6	22
6½ x 8½	16.5 x 21.6	10.7	27.2
8 x 10	20.2 x 25.4	12.8	32.6

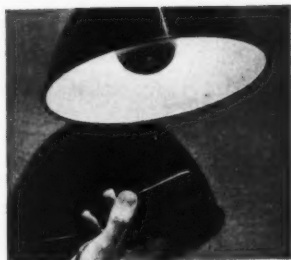
In above table, figures are, in most cases, given to nearest tenth. In actual practice, values to nearest whole number or common fraction are often stated. One inch equals 2.54 centimeters.

PHOTO DATA

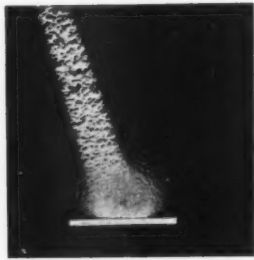
CLIP SHEET FOR PERMANENT REFERENCE

MINICAM
PHOTOGRAPHY

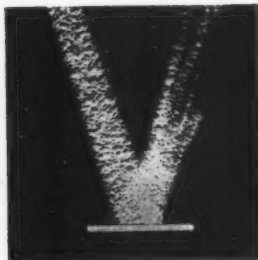
REFLECTORS AND THEIR EFFICIENCY



(LEFT) An electric exposure meter can be used to check reflecting power of various materials. In this case, reading is being taken from aluminum reflector in which a silver-bowl lamp has been placed. Use of such lamp prevents direct rays from filament from reaching mirror. Some idea of directional effect of lamp reflectors can also be gained in this way.



(CENTER) Reflection of light from a matte surface (white blotting paper). The light spreads out.



(RIGHT) Reflection of light from a specular surface ('tin' foil). The light is reflected as a beam, but the total amount of light reflected may be less than from the matte surface.

● EVERY PICTURE taken, unless a rare shot of a shooting star or a Neon sign, is made by virtue of light reflected toward the camera. But the most practical value of an understanding of the light-reflecting properties of various materials comes in the selection of reflectors for flood and flash lamps, board reflectors, motion picture screens and studio and darkroom walls.

The favorite standbys for use in home-made reflectors, aluminum, nickel and tin, have been found relatively inefficient. On the other hand, by consulting the table below, you will see that ordinary white paint having a matte surface (dull, not shiny) is highly efficient.

The table lists the percentage of light reflected from a number of common materials, the figures indicating the percentage of **total** reflection, regardless of direction. The table also shows the type of reflection, as (1) specular reflection, (2) spread reflection, (3) diffuse reflection, and (4) specular-diffuse reflection.

The table was compiled mostly from charts appearing in the magazine *LIGHT*. As an example of the table's usefulness, what would you select if you were trying to make a motion-picture screen of maximum efficiency from easily-obtained materials? The answer might be white plaster or white matte paint.

SPECULAR REFLECTION. From bright surfaces, such as metals, mirrors, 'tin' foil, etc.

MATERIAL	REFLECTING EFFICIENCY (Pct. approx.)
Aluminum alloy film	90 to 95
Aluminum foil	85 to 88
Aluminum, processed specular	75 to 85
Aluminum, polished	60 to 72
Aluminum, mill finish	52 to 55
Chromium, specular	62 to 66
Glass, black structural	4 to 6
Mirror, glass	80 to 90
Monel metal	57 to 62
Nickel	60 to 63
Rhodium	70 to 79
Silver plate	87 to 92
Stainless steel	55 to 66
Tin	68 to 72

SPREAD REFLECTION. Light is diffused but all the rays are in the same general direction, as from aluminum paint.

Aluminum, brushed	45 to 48
Aluminum, oxidized and etched	60 to 76
Aluminum, processed diffuse	62 to 70
Chromium, satin	40 to 46
Stainless steel, satin	42 to 47

DIFFUSE REFLECTION. Light is thrown out equally in all directions, as from white blotting paper. The most efficient reflector is magnesium carbonate.

Limestone	35 to 58
Magnesium carbonate	93 to 98
Paint, medium green, flat.	49
(Suitable for darkroom walls)	
Sandstone	20 to 42
White structural glass	74 to 79
White paint, matte (flat)	75 to 90
White paint, semi-matte (eggshell)	71 to 85
White plaster	90 to 92
White porcelain enamel, matte	60 to 83
White and cream terra-cotta	60 to 81

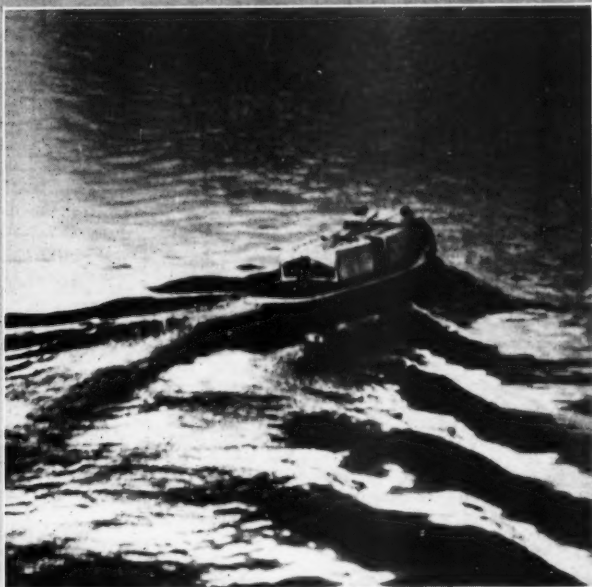
SPECULAR-DIFFUSE REFLECTION. Most of the light is diffused but up to 15 per cent is reflected specularly, as from glossy paint.

White paint, glossy	84
Porcelain enamel, glossy white	60 to 80

BINOCULARS *for* TELEPHOTO SNAPSHOTTING



PAIR of binoculars attached to camera permits rapid shooting. Distant subjects, like the motorboat in the scene (above), are brought up close (right). FIG. 1.



BY W. J. BEECHER — ILLUSTRATED BY THE AUTHOR

● MANY A SUMMER MORNING I have peered over the brow of a grass-crowned hill overlooking the marsh below. Across the field of my binoculars, crystal-line in definition, all the weird denizens of the lily pond a hundred yards away, come into focus, passing in review.

"That big frog, sunning himself on a lily pad would make a nifty picture," I'd tell myself, "if I could just press a shutter on the binocular and have it on the film!" More than once I attached the field glass to a reflex camera to try out that idea. But, if the focus was right on the ground glass (and this was hard to tell since the

binocular cut down the light enormously) the necessarily slow speed of the shutter caused blurs in the small, circular image on the film.

After many fruitless experiments I got the idea of using a small camera of short focus, the 35mm. models with 2-inch (50mm.) lenses. I selected a Model A Leica for my test. Then I went to an Aerial Photographer, one of my associates at the Field Museum in Chicago, for technical help.

"It ought to work," he said, after he heard my plan. He drew on his pipe. "C'mon out to the house this afternoon

and we'll turn out a threaded ring for coupling the camera to one of the eye pieces of your binocular."

An expert machinist, he kept his promise. A short time later, with a sliding focusing copying attachment we were ready for the test.

The problem of trying to aim and focus a reflex camera in which the image was dim and the field of view small is entirely eliminated. The camera lens is locked at infinity and firmly joined to the right eyepiece of the binocular (from which the bakelite eyecap is removed). Sight at a given object through the remaining eyepiece and focus with the central wheel of the field glass.

Keep the central wheel at that setting and focus with the adjustable right eyepiece until the same object is sharp on the ground glass. Note the setting of the right eyepiece, which will be different for each person. Once this setting is correctly established, the ground glass can be permanently discarded, all future focusing done with the central wheel. This converts the left half of the binocular into a viewfinder and coupled rangefinder.

The binocular-camera combination is used and held just as in ordinary observation, but only one eye is used instead of the customary two. Otherwise merely focus on the object, use the predetermined "index setting" for the adjustable right eyepiece and when the object is in focus for your eye, the image on the film will also be sharp.

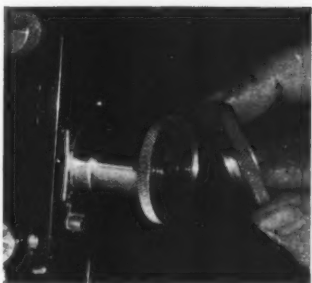
Threaded fittings attach camera lens to binocular eyepiece. (A) screws into (B).



Fitting assembled to show threaded extension that screws into lens.



Position in which fitting is screwed into threads on Leica lens.



The bakelite eyecap is removed from the right eyepiece of the binocular and the camera is attached directly to these threads as shown below.



FITTINGS and threaded eyepiece.



CAMERA attached to binocular.



TELEPHOTO combination in use. Camera is set at infinity, and left eyepiece serves as viewfinder and coupled range finder. Central wheel of binocular is used for focusing.

HOW TO COPY

DATA SHEETS and CALCULATORS

NO CAMERA OR LENS IS REQUIRED FOR COPYING FLAT SURFACES

● **CAMERALESS COPYING** of the data sheets and calculators appearing in MINICAM makes them available for handy reference without cutting out the pages or purchasing an extra copy of each issue.

No lens or camera is required for this sort of copying and positive prints exactly the size of the original drawing or text can be made in any quantity by this method.

Use very contrasty, single-weight paper (Kodabrom No. 4, Brovira Extra Hard, etc.) either glossy or smooth matte. Glossy is preferable for making the negative, but a smooth matte finish is better for the final prints because glossy surfaces tend to crack and chip when handled a great deal. Fotocopist Corp. of America, First-Central Tower, Akron, Ohio, makes a special paper with a smooth emulsion that won't crack when the print is folded. Haloid Outline Special, Photostat and similar papers work well too.

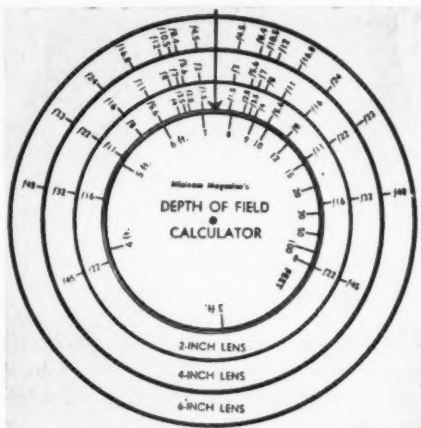
Here is the procedure:

(1) In the darkroom or, if using special copy paper, in subdued white light, lay a sheet of paper on the page to be copied, *emulsion-side* against the page.

(2) Lay a sheet of clean glass over the paper.

(3) Place a piece of plywood, pressed wood, or other stiff material underneath the magazine, so the page to be copied and any remaining pages beneath it are sandwiched between the glass and the backing.

(4) With two C-clamps and two strips of wood to distribute the load over the glass as shown, apply pressure to make the sensitized



POSITIVE MADE FROM negative produced by cameraless copying method. This is a reproduction of the Calculator which appeared in June 1940 MINICAM, page 55. **FIG. 1**

paper come into close contact with the page. This is important, for *lack of complete contact* is the most common cause of trouble when using this method.

(5) Expose the *back* of the sensitized paper to a strong source of light. The exposure, found by trial, should be sufficient to produce on the paper a negative image that is rather dark by

(Page 96, please)



CLAMPS AND GLASS sheet hold the copying paper in contact with printed page. **FIG. 2**



COATING THE COPY with clear brushing lacquer protects it from damage by stains. **FIG. 3**

MINICAM'S

SHUTTER SPEED
and
LENS APERTURE

DIAL

READY FOR USE—SIMPLY CUT OUT AND PASTE ON CARDBOARD

• WHEN CORRECT EXPOSURE for a given subject is known, this calculator can be used to determine (1) the lens aperture for a faster or slower shutter speed, (2) the shutter speed for a larger or smaller lens opening, or (3) the relative speed of lenses. Three examples will illustrate:

Example 1: The correct exposure for a certain scene is $1/30$ second at $f/11$. What is the equivalent exposure for the same scene at $f/22$? Set $f/11$ opposite $1/30$ second; and opposite $f/22$ read $1/6$ second.

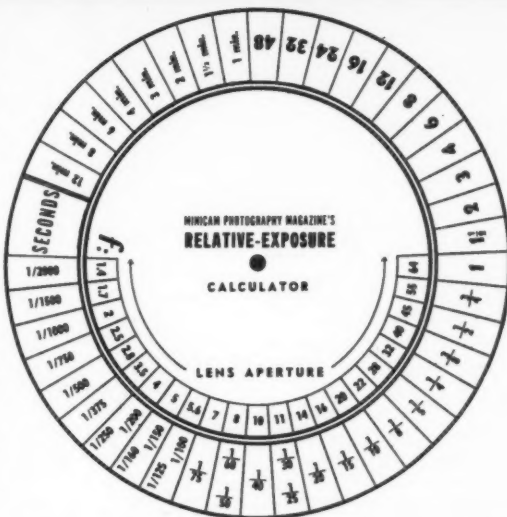
Example 2: In the same scene, assume we want to shoot at the same subject at $1/500$ second, perhaps to stop a moving object that has entered. What lens aperture should be used? The calculator remains set as in Example 1 at $1/30$ second, $f/11$; but, this time, the reading is taken opposite the $1/500$ -second mark, giving the answer $f/2.8$.

Example 3: How much faster is an $f/22$ lens than an $f/64$ lens? Set $f/64$ on the inside disk opposite the 1-second mark on the outer disk. Opposite $f/22$ will be $1/8$ second, indicating that an $f/22$ lens requires $1/8$ the exposure that an $f/64$ lens will need for a given scene. This means the $f/22$ lens is EIGHT times as fast.

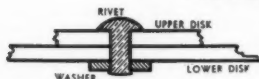
Some of the aperture values may be slightly different from those on your camera. For example there is no $f/6.3$ mark on the calculator. In such cases use the closest stop marking shown ($f/7$ instead of $f/6.3$, $f/5$ for $f/4.5$, etc.).

When two alternative shutter speeds are given in the same space ($1/25$ and $1/30$, $1/50$ and $1/60$, $1/100$ and $1/125$, $1/200$ and $1/250$,

etc.) use the one that is on your camera. If both are available select the faster one, to insure less chance of a blurred image. If the initial exposure calculation has been accurate to within one full stop the difference between these speeds generally will not cause appreciable under- or over-exposure of black and white emulsions.



ASSEMBLING THE CALCULATOR



Assembly of disks with solid rivet and washer.



Spreading rivet with Ball-pein hammer.

• AFTER cutting out the disk above (or copying it as described on the previous page), it can easily be mounted for permanent use.

(1) Mount the outer ring and the center disk separately on sheets of thin, stiff cardboard or hard fiber; or even on thin sheets of brass or aluminum.

(2) Give the printed surfaces one or two coats of clear lacquer. If there are any dim characters, touch them up with black india ink before lacquering.

(3) Carefully trim excess material from the central disk and from the body of the calculator.

(4) Pivot the two parts together, carefully centering the disk on the larger part. For pivoting, use a rivet. The little, hollow rivets are best. However, a washer and a solid rivet, such as the soft copper type used for anchoring automobile brake lining in place, can be used. Cut off the rivet so that, when inserted through the two calculator disks and the washer, it projects just enough to permit the end to be spread out a little with a hammer. Do not make the rivet so tight that the central disk won't turn. A rivet $3/32$ " to $1/8$ " in diameter is about right. (Page 89, please)



• **WAR NERVES** are here, and any news photographer who has sprung a flash on returning evacuees can well testify to that. Robert Montgomery, MGM movie star, who drove an ambulance in France, had ducked many a bomb during his short but thrilling experience at the front. Recently, a news photographer visited him to take some pictures. When his flash bulb exploded, Montgomery leaped, stiffened, reddened and explained with a wry smile that he had seen plenty of bombing.

• **THE ONCE** obscure news photographer is now very much in the public eye. Here is just one example: Recently *PM*, New York's lively newspaper, devoted two full pages in its Sunday issue to a discussion of the news photographer's work, and headed: "It Takes Both Thick and Thin-Skinned Photographers to Cover News."

In the interesting text provided by Ralph Steiner, he says, "Years ago newspaper photographers were hard-boiled and little more than that. Today there are two types: the hard-boiled and the sensitive. The hard-boiled photographer is better on highly dramatic assignments such as riots, murders, or wars, which demand nerve, coolness and physical strength. He must force his way into places hard to get to or where he isn't wanted. He must be tough enough to go without sleep or sufficient food for days at a time. The classic news pictures up to now have been made by the hard-boiled guys. Yet toughness is not everything in news photography.

"The sensitive photographer comes into his own when the subject is physically easy to get, but must be made interesting through direction, unusual point of view, or deeper feeling. He is often sent out when the drama of a situation is under the surface; when the crisis is yet to come, or when it has passed. The interest of his pictures will depend on his feeling for the people affected, the look of the landscape, and the small ways in which the underlying drama expresses itself."

• **A BALTIMORE NEWS** photographer's picture resulted in the solution of a hit-and-run

accident which caused the death of George L. Phillips of that city. A. C. Rosner, Jr., *Wide World* correspondent, formerly with *Associated Press Photos*, took the photograph which broke the case.

Rosner was returning home in his automobile one early morning, when he saw ahead of him a few persons gathered in the middle of a street intersection. He leaped from his car and discovered that they were looking at the badly battered body of a man who evidently had been struck by a hit and run motorist. He ran back to his car, got his camera and then returned to take some pictures of the body. No one knew who the dead man was. By the time the police arrived, the persons found at the scene said they had not seen the accident. But Sergeant Clarence O. Forrester, head of Baltimore's Accident Investigation Bureau, studied an enlargement made from one of Rosner's shots, from the *Baltimore Sun*.

Rosner had trained his lens on the body of the victim. In it was the picture of the lower part of a man's body. The man was wearing an overcoat with a hole burned in it. The investigators located the man. In it was also a picture of another man's feet. He was wearing bedroom slippers. Knowing he was a resident of the neighborhood, the police rang doorbells until they found him. From these key witnesses, and others whom they were able to trace through them, the police were able to proceed to the offices of a cab company, one of whose vehicles was said to have struck Phillips.

The evidence narrowed down to the cab driver, John T. Beatty, and he was arrested.



This picture, with its slender clues of a hole in an overcoat and a pair of bedroom slippers, led Sergeant Forrester and his Accident Investigation Division in Baltimore to the arrest of a taxicab driver in the hit-run killing of George L. Phillips. The picture was taken at the scene by A. C. Rosner, Jr., news photographer, who, with his lens trained on the body of the victim, did not get the faces of the bystanders. But Sergeant Forrester located them after he had seen this picture, and they turned out to be key witnesses.



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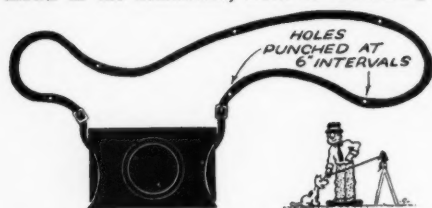
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MAZDA PHOTOFLASH LAMPS

GADGET-HINTS AND SHORT CUTS

Case Strap Measures Short Distances

Guessing at the distance between camera and subject often results in blurred, out-of-focus close-up images. Holes punched at six-inch intervals in the camera-case strap, as shown in the illustration, serve as "measuring



tape" when you're caught without rangefinder, tape measure, etc.

Unfasten one of the buckles on the strap, stretch the band in the direction the camera is pointing, and punch the first hole exactly even with the extended camera lens. Punch similar holes at six-inch intervals. Holes may be made with a nail, or square holes cut with a one-eighth inch chisel.

With one buckle unfastened, the average carrying case strap will stretch out to a distance of about 36", ample for practical purposes.—*Carl Sorensen, Chicago, Ill.*

What Kind of Film?

Minicam users who shoot more than one kind of film and load their own cartridges from rolls of bulk film need some method of identifying the different cartridges.

As soon as the cartridges are loaded and brought into the light, write the name of the



type of film, and its film speed on the protruding tongue of film as shown in the illustration.

Then when the camera is being loaded the photographer knows without question what film he is about to use.—*Gordon Bicknell, Long Beach, Calif.*

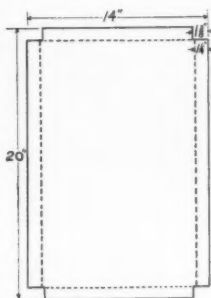
For Developer Stains On Hands

If the fingers are dipped in collodion before starting, the nails will not be discolored with stains from developers as is so often the case with pyro.

If this information comes too late, the stained fingers can still be handled, however, by soaking the hands in a 20% solution of potassium permanganate. This will leave a brown stain which is removed by rinsing in a 5% solution of sodium bisulfite.—*Loel T. Beggs, Cleveland, Ohio.*

Print-Washer

A rocking print washer can be made from a discarded 14x20" ferrotype plate. With sharp tin shears cut the sheet as shown on the diagram. Turn up the edges to make a 17½x11½" tray 1¼" deep.



Buy a 12x3½" piece of sheet metal and have the tinner crease ¼" edges all around. This eliminates the dangers of cutting or scratching hands or prints on sharp edges.

Bend this sheet along the 12" dimension to get a 12x1¼" strip at right angles. This forms a surface for soldering the partition to the tray. At the exact center of the washer scrape the black enamel from the ferrotype tin in a 1¼" strip across its full width. Then place the partition in the tray and solder it firmly in position.

Paint this sheet with black water-resistant enamel. Solder 1" wire legs under the partition. Using iron glue, attach rubber or leather strip bumpers at each end of the tray.

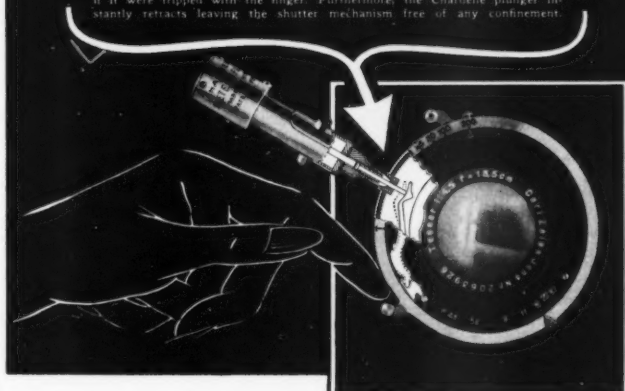


To use the washer, place it in the sink with the middle partition directly beneath the faucet and turn on the water. As one section fills with water it tilts down and the water escapes through the narrow openings at the tray corners. Fresh water flows into the other section. Prints up to 8x10" can be washed.—*Eleanor P. Brown.*

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5 1/2 inch cable, 14
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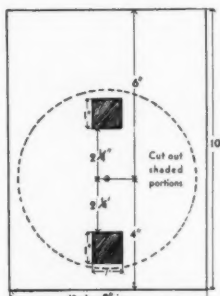
GADGETS, KINKS AND SHORT CUTS

(Continued from page 78)

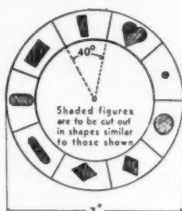
Vignetter and Spot Printer

Two pieces of cardboard, from packages of 8x10" enlarging paper, and a paper fastener make a handy vignette or spot-printing board.

In one of the cards cut two holes, 1" square, as shown in the drawing, placing one hole near the center of the card, and the other near the bottom. (See the drawings for exact dimensions).



On the other card, inscribe a circle, 7" in diameter. With a protractor divide this circle into nine segments, each having an angle of 40°. In the exact center of each of these segments mark out openings of various sizes and shapes. Do not make them more than 1" across, as the holes in the base card are only this large.



Mount the cardboard disk on the base card, using a clinching type paper fastener. Mount the disk inside the area indicated by dotted lines on the drawing of the base card, so the holes in both disk and larger card will be aligned.

The disk is designed to cover one of the square openings while the other opening in the large card is used. For spot-printing a portion of an enlargement near the center, turn the desired disk opening to the center hole in the card. For edges of the print, the lower hole is used.

For vignetting, where the print fades gradually into a white background, make one of the disk openings with rough, irregular edges. For spot-printing a large area hold the board close to the enlarger; for small areas, hold it close to the print.—William J. Vette, Denver, Colo.

Safelight and Timer

By fitting a small, heat-actuated revolving fan over a colored electric bulb, a combination safelight and timer is made. The fan-shaped device is sold by hardware, electrical supply, and dime stores to produce flickering light in artificial fireplaces.



Paint one of the metal vanes white or any color that is easy to see when the safelight is in use. Attach the fan to the bulb as shown in the illustration.

The bulb's heat causes the vanes to turn at constant speed. For timing prints count the number of times the painted vane passes a predetermined point.—Tracy Diers.

Fifteen-Cent Spotlight

This spotlight is made from a Drip-o-lator coffee maker, a ceiling fixture for a drop light, a 6" condenser lens from an enlarger, an ordinary light socket, and a piston ring compressor. After scouring the attic and basement "junk piles" the piston ring compressor was the only item that had to be bought. It costs about 15c at any automobile supply store.



To mount the lens, cut the neck from a second ceiling mount and bend it to hold the 6" lens in place. Two holes are drilled in the neck, which is fastened to the coffee maker with small bolts. The lens is removable, and can be fastened securely in the spotlight whenever the light is being used.

The bottoms are cut from both sections of the coffee maker, so the bulb may pass through. The ceiling mount is bolted to the base of the coffee maker, then the light socket is screwed into place. The piston ring compressor is placed around the light chamber and this holds the lamp in position, or permits its being clamped to any solid object.

A good stand for this light is made by cutting a 4-ft. length of ordinary water or gas pipe and mounting this in a 2x8" wooden block. The piston ring compressor is inserted in the end of the pipe and its clamping action permits securing the spot at any desired angle.—J. M. Williams, Independence, Kansas.



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EXHIBITS AND LECTURES

City	Street Address	Dates Open	Name of Exhibition
Boston, Mass.	New England Museum of Natural History, Main Hall, 234 Berkeley St.	December 17 to January 31; 9 a.m. to 4:30 p.m. on weekdays, 1 to 4:30 p.m. on Sundays.	Second Annual Boston International Salon of Nature Photography.
Buffalo, N. Y.	Buffalo Museum of Science.	November 20 to December 19; 9 to 5 p.m. Saturday; 10 to 5 p.m. other days; 7 to 10 p.m. evenings, Monday, Thursday and Friday.	Second Annual Photographic Exhibition of Wild Life.
Chicago, Ill.	Hotel Stevens. (Admission by registration.)	December 11 to 15; 12 noon to 10 p.m.	Annual Chemists' Salon of Photography.
Glendale, Calif.	The Sala de Casa Adobe.	December 6 to 8; 2 to 10 p.m. daily.	Third Annual Southern California Photo Salon.
Minneapolis, Minn.	Art Institute.	December 7 to January 5; 10 a.m. to 5 p.m. on weekdays, 1 to 5 p.m. on Sundays.	Ninth Annual Minneapolis Salon of Photography.
New York City	Riverdale Neighborhood House, 5521 Moshulu Ave.	December 26 to January 9; 9 a.m. to 8 p.m.	First Annual Salon, Riverdale Camera Club.
New York City	Photograph Gallery, Parents' Magazine, 52 Vanderbilt Ave. (S.W. corner of 45th St.)	November 25 to Dec. 13; 9 a.m. to 5:30 p.m.	Photographs by Elizabeth R. Hibbs
New York City	Hotel Taft, Grill Room, 7th Ave. at 50th St.	October 1 to January 15; 9 a.m. to 10 p.m.	Prize winning prints in Hotel Taft contest.
Norfolk, Va.	Norfolk Museum of Arts & Sciences.	December 8 to 29; 12 noon to 5 p.m. on Tuesdays through Saturdays, 2:30 to 5:30 p.m. on Sundays.	Fourth Southern International Salons of Pictorial Photography.
Owego, N. Y.	Owego Camera Club Gallery, 23 Lake St.	December 2 to 14; 7:30 to 10 p.m. evenings.	Popular Photography 1939 Prize Contest.
Philadelphia, Pa.	Franklin Institute. (25c admission for entire museum.)	December 3 to 31; 1 to 6 p.m. on Tues., Wed., Fri. and Sun.; 1 to 10 p.m. on Thurs. and 10 a.m. to 6 p.m. on Saturday.	Fourth Annual 100-Print Salon of the Photographic Society of America.
Philadelphia, Pa.	The Free Library, Logan Square.	December 20 to January 5; 9 a.m. to 10 p.m. on weekdays, 2 to 10 p.m. on Sundays.	Pan-American Salon of Photography.

SALONS

Closing Date	Name of Salon	For Entry Blank, Write to	Number of Prints and Entry Fee	
December 14	Sixth Annual Des Moines International Salon of Photography.	Walter Vittum, Salon Director, Y.M.C.A., Des Moines, Iowa.	4	\$1.00
December 15	First Annual North Dakota Salon.	C. L. Olson, Salon Chairman, Minot Camera Club, Minot, N. D.	4	\$1.00
December 20	First Annual Salon, Riverdale Camera Club.	Wm. Sculthorpe, Riverdale Neighborhood House, 5521 Moshulu Ave., New York.	4	\$1.00
January 6	Sixth Rochester International Salon of Photography.	Earl C. Esty, Print Director, The Rochester Memorial Art Gallery, Rochester, New York.	4	\$1.00
January 10	Eighth Wilmington International Salon of Photography.	H. V. Maybee, Secretary Salon Committee, 301 Delaware Trust Bldg., Wilmington, Del.	4	\$1.00
January 18	Fourth Annual Salon, Bridgeton Camera Society and the Cohanzick Camera Club.	Graham Schofield, Bridgeton, New Jersey. (Open to all amateurs in New Jersey south of Trenton.)	4	.50
January 31	Sixth Annual Salon of Pictorial Photography.	E. A. Rosseter, P. O. Box 23, St. Petersburg, Fla.	4	\$1.00
February 1	Third Valley of the Sun Photographic Salon.	Victor R. Kiessling, Chairman, 107 North Fifth St., Phoenix, Ariz.	4	\$1.00
February 1	Eighth International Salon.	Ira W. Martin, Salon Director, 10 East 71 St., New York City.	4	\$1.00
February 3	Fifth Virginia Photographic Salon.	Marie Powell, 1714 Park Ave., Richmond, Va. (Open only to persons born or now residing in Virginia.)	8	25c per print, minimum
February 10	Third Annual Youngstown Camera Club Salon.	R. M. Eickmeyer, Salon Director, 17 North Champion St., Youngstown, Ohio.	4	\$1.00
February 21	Fifth Modern Photography Exhibit.	Mary Jane McLean, Warthmore, Parkersburg, W. Va.	5	\$1.00
March 3	First Annual National Salon for Newspaper Subjects.	U. Joseph Brown, Salon Director, O-T Camera Club, 304 Oklahoma Bldg., Oklahoma City, Okla.	4	\$1.00

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- ★ Built-in viewer and safelight may be detached from negative file by removal of hinge rod, thus increasing its utility.
- ★ Removable center partitions are provided to adapt negative file to either small or large negatives or a combination of sizes.
- ★ Separate front compartment for index cards. Capacity 1500 negatives $2\frac{1}{4} \times 3\frac{1}{4}$ and smaller or 750 $3\frac{1}{4} \times 5\frac{1}{2}$.
- ★ File index cards printed on both sides for complete data. Storage space for power cord.
- ★ All metal welded construction with carrying handle and snap catch.
- ★ Durable rich brown wrinkle finish.

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25 Glossine Envelopes for $3\frac{1}{4} \times 5\frac{1}{2}$ or smaller
25 File Separators
12 Index Cards.

Safelight Amber Slide.....\$.75
Extra Envelopes $2\frac{1}{4} \times 3\frac{1}{4}$ (per 100)..... 1.00
Extra Envelopes $3\frac{1}{4} \times 5\frac{1}{2}$ (per 100)..... 1.30
Extra File Cards (set 25)..... .30

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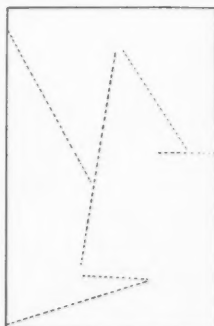


"HER NEW COAT." Panatomic film, f8, 1/100 second. FIG. 1

• "HER NEW COAT," like many other snapshots, conceals a forceful composition because it includes too much extra detail.

By cropping the picture along the plain white lines shown above, much of this superfluous detail is removed. This removes the large white area on the right, which draws the eye, and the distracting pattern of white panes in the background door.

The dotted lines in the photograph show the dominant lines of movement in the new picture. Wherever a dark area adjoins a lighter area these



THIS SHOWS LINES of movement in the picture trimmed down to the white rectangle. FIG. 2

lines of action are easily picked out. The point at which the girl's hand rests on the stone balustrade is important too, because the figure is supported at that point.

Now let's analyze the picture again from the point of view of tones. The areas outlined in Fig. 2 make a more striking picture when the tone values of several of them are changed. The dominant area is the girl's fur-coated figure.

The fur coat is naturally dark, therefore it is made the darkest tone in the new print. Making the area behind the girl (the building) lighter in tone automatically causes the coat to appear darker. Lightening this background area also subdues the distracting contrast be-

(Page 86, please)



DIAGRAM SHOWING change in emphasis of tones. FIG. 3



THE improved picture.

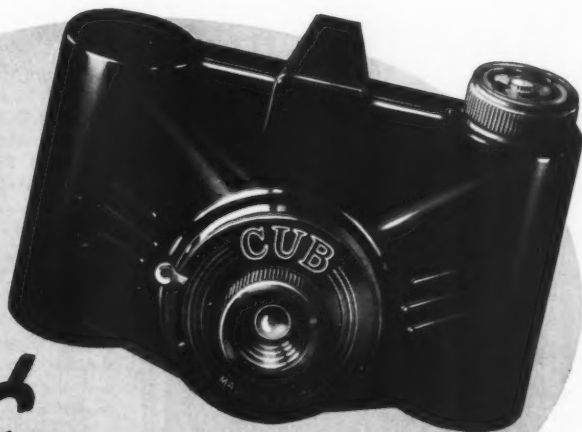
FIG. 4

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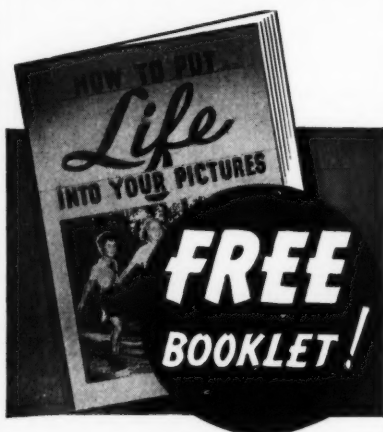
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Being Critical

(Continued from page 84)

tween the white window panes and the darker stone of the building.

A shadow across the building produces the diagonal running from the upper lefthand corner of Fig. 2 to the girl's figure. This is the second darkest area and remains the same value as in the original print. The pavement is lightened slightly.

All of these value changes can be made by dodging or holding back during enlarging.

Compare the values shown in Fig. 4 with those in the original print. In Fig. 4 the figure is the center of interest, well-separated from the background. Surrounded by the dark fur and the dark hat, the girl's face assumes an important place in the composition.

Analyze your own snapshots by this method and see how many interesting compositions are hidden in them. When you discover an interesting "Hidden Composition" send it in to MINICAM PHOTOGRAPHY.

Paper Bending Caricatures

(Continued from page 45)

An inch margin around the actual picture area is ample.

If the paper is bent considerably, certain sections of the print will be unequally exposed and bad reflections may be created.

Focus the image in total darkness and stop the lens all the way down so that every part is in focus. Use a fast bromide paper so that an excessively long exposure is not needed.

Most exposures with the paper bent require extra dodging. Those sections of the paper that are closest to the lens will be exposed more rapidly than parts of the image of equal density that fall on the paper farther from the lens.

Local control while developing is another method of equalizing the print's tones. Application of warm developer to the portions that develop slowly, or breathing on the print and briskly rubbing the slow parts will help.

This is a sure-fire way to "Alienate People and Cultivate Enemies," but don't try it on your girl friend unless you want to get the ring back to make a down payment on a new enlarger!

The Illusion of Depth

(Continued from page 31)

Scenes taken in mist or haze should be underexposed slightly and overdeveloped to provide good printing contrast.

• **METHOD 5**, the use of isolated objects at varying distances, is easy to appreciate and to apply. It utilizes the effect of perspective, the impression of distance being created by the apparent progressive decrease in size of the objects. While Method 2 uses the perspective of continuous lines, as of bridges or roads, Method 5, utilizes isolated objects. Many of us take scenes in which all of the objects in a scene are about the same distance from the camera, instead of composing the picture to include near and middle distance objects that will "lead the eye" into the picture.

• **METHOD 6**, is the use of a foreground "frame." The effect is heightened, when the "frame" extends not only around, but also across parts of the picture, as in the illustration on page 31, where four parts of the picture are framed. Note especially the long slit of a frame created between man's right leg and the stick in his hand, through which, in the distance two tiny human figures can be seen.

Last, but not least, we consider the use of the out-of-focus background for creating the illusion of depth.

This device relies on the ability of the camera to see part of a picture in sharp focus while the rest remains fuzzy and unclear. This device for concentrating attention on a center of interest is one of the mechanical advantages of the photographer over the painter.

In shooting landscape scenes, we usually use the smallest lens opening the light allows in order to get all parts of a picture in sharp focus. This means that a picture of cornstalks, like that illustrating Method 1 (page 28), would be shot at about 1/50 second, f11. But to keep the distant stalks out of focus, a larger lens opening would be necessary. So the shot was made with the lens opened wide to f4. The shutter

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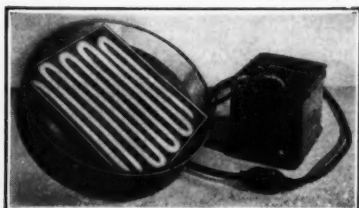
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speed, accordingly, was increased to 1/400 second.

As a result, note that the foreground corn stalks stand out from their surroundings, centering interest on the area of greatest definition and contrast, while the background remains out of focus.

(For a handy scale of relative lens and shutter settings see page 75 in this issue. For a circular depth-of-field calculator see August MINICAM page 57. This covered 3 and 5 inch lenses. A calculator for use with cameras having 2, 4 and 6 inch lenses appeared in MINICAM for June 1940, page 54).

Look for the devices which give pictures the illusion of depth, and you will find that not one, but two or three devices can be utilized in each of the scenes you shoot. Your friends will say, "What marvelous, third-dimensional, stereoscopic depth your pictures have! How do you do it?" And you will be able to tell as well as show them.

Speed Shooting in the Movies

(Continued from page 49)

For purposes of comparison, all scenes were filmed first with an ordinary camera, then with the Stroboscopic camera.

The lenses used on this movie were 2" f1.9 lenses that were stopped down as far as possible, depending on the light conditions. Four stroboscopic lights were used on some of the subjects in "Quicker'n A Wink", but many of the subjects did not require that much illumination.

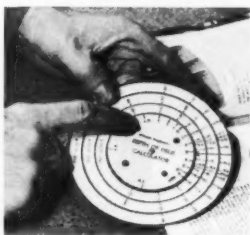
One practical difficulty was the level of ordinary illumination present where the high speed pictures were being taken. This light had to be dim enough so that it left no streaks on the film as it passed the lens. If no ordinary lamps were directly in the field of the camera, and there were no bright highlights from shiny subjects nearby, this was no problem indoors. Outdoors, smaller diaphragm settings of the motion picture camera lens had to be used to dim the daylight to avoid streaks.

Most of the pictures were taken on standard Plus-X film, widely used in commercial motion pictures. Some of the more difficult shots, however, were taken on a special film similar to the Kodatron Speedlamp film. For a description of the Kodatron, see MINICAM, Oct. 1940, page 107.

Assembling the Calculator

(Continued from page 75)

If the central disk is difficult to turn at times, make finger grips out of four disks of hard



Disk finger-holds can be added for turning inner circle.

fiber or stiff cardboard 3/16" in diameter and as thick as a dime. A hollow leather punch cuts these neatly. With pyroxylin cement mount these little buttons at equally-spaced intervals around the central disk (Fig. 3), about 3/8" from the

edge if that position covers none of the figures.

After the calculator is assembled, give the back and edge a coat of lacquer.



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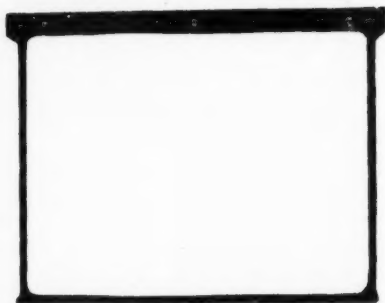
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Mounting Camera in Lens Board

When the lens is not easily removed from your camera, the entire camera can be mounted into the enlarger to make a single lens do work both in and out of the darkroom.

The large wooden lens board of enlargers such as the Elwood is cut as shown in the



illustration to take the camera bed. The opening in the lensboard also permits adjustment of the diaphragm.

The back of the camera is removed and the body and bellows are inserted inside the bellows of the enlarger. Focusing adjustments are made with the enlarger, not with the camera.—Tracy Diers.

Making Light Behave

(Continued from page 43)

bolic reflectors, because they tend to spot the light, are used to get extra carrying power and brightness, although the spot may be made large enough to cover the whole field of view of the camera lens.

● **REFLECTOR MATERIAL.** Metal reflectors generally put more light on the subject than those made of other materials. To keep exposures as short as possible, a reflector with the highest possible efficiency should be used. A highly polished metal reflector is not necessarily the most efficient . . . although it will usually give the most accurate beam control, especially with small lamps. Aluminum in various surfaces, and white paint, rank high in the table of efficient reflecting surfaces. Aluminum paint, although

frequently used, is low in efficiency. (See the Table in this month's Photo Data sheets, page 71.)

If good pictures are the result of skillful control of all the variables that enter into the making of a picture . . . it is easy to understand why some of the world's best pictures have been made by carefully controlled light . . . and why the first step toward better-than-average results is an understanding of the simple fundamentals of light sources and reflectors. These are the tools which must be mastered for consistently clean photographic technique . . . which is the door to artistry and individual accomplishment.

● Author of several articles in MINICAM, including the article in this issue, "Making Lights Behave," Don Mohler is a specialist in photoflash and photoflood photography with the General Electric Company at Nela Park, Cleveland, O.

Helping solve the picture-taking problems of amateur, press and professional photographers

is his job and hobby, both. His home darkroom is well equipped for working with the versatile 35mm. camera (Contax) which allows him the greatest all-around leeway to try



a variety of films, lenses and accessories.

Don Mohler's start in picture-taking began in grammar school with a vest pocket kodak and an ABC developing outfit. "The very first thing I learned was to keep my fingers off a wet negative," he says. In college he edited the year-book and used a Graflex to cover sports. At the University of Missouri he studied journalism and press photography and learned how to handle a Speed Graphic.

Don's writing has been printed in the snapshot, amateur, portrait and press fields. He has lectured to groups of shooters, advanced amateurs, press photographers and professional and commercial photographers . . . to camera store clerks and managers. Many of G-E's booklets, leaflets and folders on picture-taking and light sources are his work. His pictures have won local prizes . . . have appeared in "Life" magazine and in national advertising. As a speaker, writer and picture-taker he does not look on himself as an expert, but simply as a guy who tries to get pleasure out of doing things as simply and directly as he can.

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Anyone.	Photos taken with a Kalart Speed Flash.	Over \$500 in merchandise, total of 35 prizes. First three are Speed Graphic, Omega and Solar enlargers.	The Kalart Company, 915 Broadway, New York City.	December 31
Camp Fire Girls.	Pictures answering, "Why do you think you're lucky to be living in America?"	Silver plaque for 1st national prize. Also, a scholarship equal to \$100 at the School of Modern Photography, for the best entry from the New York metropolitan area.	Nancy Walker, Camp Fire Girls, Inc., 88 Lexington Ave., New York City.	January 1
Anyone.	Any print colored with Raygram Photo Colors.	46 Merchandise prizes.	Contest Editor, Raygram Corp., 425 Fourth Ave., New York City.	February 15



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Gauge Insures Sharp Closeups

To make certain of accurate focus when taking closeups of flowers and insects, run the camera bellows out to "same-size" position and mark the track. Then focus sharply on a flat target and make a stick the proper length to reach from camera to target. Bolt this stick into the tripod screw hole.

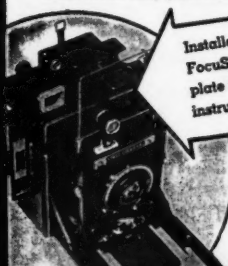
When any same-size shot is needed, the end of the stick shows the exact focus and space position. This setup is faster than reflex focusing and is a natural for insects and flowers.—

Ivan Grosvenor.



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FOCUS THE LIGHTED "S"



West Coast News Photographer, Gene Lester, using his FocusSpot to get a difficult candid shot at the **EARL CARROLL Theatre Restaurant**—famous Hollywood Night Club.

Jack Frost's Art Show

(Continued from page 36)

effect an economy in negative material, for the patterns will be different on each sheet of glass. Why this should be so I cannot explain, but it invariably happens that, no matter how large or small the sheet of glass on which the designs form, one picture only will be framed. Thus, on a large window there will be one big design, whereas on a casement there will be a small one on each section of the glass, each having a different pattern.

If a camera is brought from a warm room into the cold outside temperature, moisture will condense on the lens. To avoid this, keep the camera in a cold room overnight.

Any film will give good results, for the subject is entirely in tones of grey. There is, therefore, no advantage in using a filter, or panchromatic material. The illustrations accompanying these notes were all made on medium speed film, orthochromatic, and without a filter.

Exposures should be timed with an electric meter, the reading of which is halved to record the delicate, light tones of the subject when a straightforward record is required. As I have said, considerable variation can be produced by exposure when the pattern is sufficiently decorative to justify an exaggeration, or departure from the original tones of the subject. To increase the contrast of the pattern and background, underexpose slightly and over-develop.

It is quite possible that when the negative of the complete design is projected in the enlarger, a portion will be found to give a more decorative arrangement than the composition which was originally selected. It is not until the image is projected that the true beauty of the ice crystals is seen, so before making the final print, try out various possibilities.

Some negatives may not develop up to printing strength, due to the use of too cold a developer, or incorrect exposure. Such negatives can be made into quite good printers by bleaching in the

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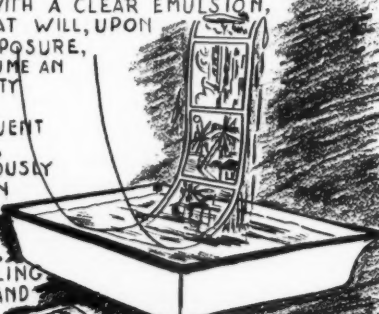
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THE EXPOSED
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usual bichromate-hydrochloric acid bath, followed by washing until all stain has disappeared. The negative is then dried but not re-developed. The brown image given by the bleached negative gives a greater printing value than would be the case if the negative was re-developed in the usual manner. If sufficient density is not obtained by the first bleaching, the negative may be re-developed and again bleached. Printing from a bleached negative applies only to projection printing. For some reason, when printed by contact, the image has no light-stopping property and must be re-developed. A bleached negative is sensitive to daylight, and must be stored in the dark.

The actual image of frost pictures, on glass is really a dull grey. For Salon work, however, a stronger image is required and increasing the contrasts is permissible, otherwise it would appear very dull when hung on the wall.

If the final print is too grey and lacking in snap, a slight reduction with hypo-



The revolutionary "Dodgitank" is a combination film tank and dodging instrument. The inventor, Prof. Wacky Shuttercluck, explains that the gentle back and forward motion used in dodging enlargements also agitates the tank.



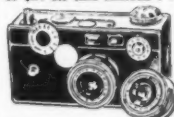
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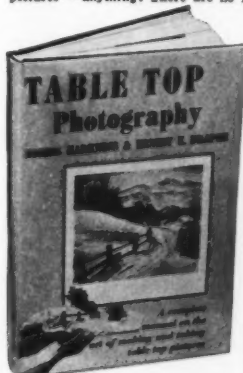
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ferricyanide reducer, will brighten up the image. This reducer acts first on the lighter portions of the developed print, leaving the blacks practically unaltered.

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Water 16 oz.
Potassium ferricyanide 1 1/4 oz.

Stock Solution B

Water 64 oz.
Hypo 16 oz.

For use, take 1 oz. of Stock Solution A; 4 oz. of

Stock Solution B; and water to make 32. oz.

Pour the mixed solution at once over the print to be reduced. Watch closely, until the highlights have been whitened to the tone of the print margin. This may take only a few seconds. The reducer also can be used over small local areas, applying with a brush, and working carefully to avoid harsh edges.

The strength of the solution can be varied by the proportion of solutions "A" and "B"; the deeper the color the stronger the solution. After reduction, wash prints thoroughly before drying.

Now's the time to let Jack Frost do his art work on your windows, producing custom-made camera subjects right where you can photograph them with the greatest of ease.

Copying Without A Camera

(Continued from page 74)

reflected light but that shows good contrast by transmitted light. A correctly exposed paper negative copy when developed fully shows only a grayish image on the black surface, but the printed matter is easily read when the sheet is held up to the light and looked through. A shorter exposure produces a "readable negative" that gives a poor positive print.

The method by which light going first through the sensitized paper can produce an image is, briefly, this: The inked areas absorb most of the light that reaches them, and the emulsion over them is fogged only by the rays that pass through it once. The white areas of the printed page reflect most of the light, and the emulsion over them receives a double dose of exposure.

(6) Fix and wash the negative, then dry it without applying too much heat. Use this negative to make the positive prints on contrasty paper.

(From here on the operations are the same whether you use the original page taken from the magazine, or a cameraless copy of it.)

Photo data clip sheets can be filed for convenient use in numerous ways. A loose-leaf notebook binder taking a 7x9" sheet offers a good method. Trim the sheets and punch them to receive the binder rings.

If the sheets are used frequently in the darkroom, mount them on a piece of thin cardboard or very heavy paper. The best way of fastening them is with dry-mounting tissue, but any good standard adhesive can be used.

After the sheet is dry, give the printed surface one or two coats of clear brushing lacquer. This protects the surface against stains, fingerprints, moisture, etc.

Another way to protect such sheets is to insert them into individual envelopes made of waterproof cellulose film, and seal the edges neatly. Instead of a loose-leaf notebook arrangement, the data sheets can be kept in an indexed file, or a wall cabinet.

Cinecam Quiz

(Continued from page 51)

50. All projectors were intended to run without oil. TRUE? FALSE?
51. Filters are used to secure clouds, lower sky brilliance, and remove haze on distant objects. TRUE? FALSE?
52. A red filter is especially good for special effects, such as moonlight results by daylight. TRUE? FALSE?
53. When using Super-XX film for photographing brilliant subjects on bright days, a No. 2 neutral density filter should be used. TRUE? FALSE?
54. 8 mm. Kodachrome film is not as fast as 16 mm. Kodachrome. TRUE? FALSE?
55. Most any sky effect, from that of no filter to that of a red filter may be produced by rotating a pola screen in front of the camera lens. TRUE? FALSE?
56. Filters cannot be used in connection with pola screens. TRUE? FALSE?
57. A pola screen has no effect when shooting directly into or away from the sun. TRUE? FALSE?
58. The increase in exposure for all angular positions of the pola screen is four times with panchromatic film. TRUE? FALSE?
59. Glove compartments in your automobile are a good place to carry your camera, filters and film. TRUE? FALSE?

(Answers on page 51)



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The Holiday Spirit

(Continued from page 16)

Plan what pictures are to be made. Decide how they are to be made. Get the lamps and other materials that are needed. Make a few experimental pictures now. Learn from these whether or not you are following directions and whether or not everything that is needed has been provided for.

Then, when the holiday season comes, your shooting will be easy and successful. Holiday shooting is fun, too, because it is leisure-time shooting. Evening hours, an occasional five or ten minutes in between other activities, or a whole day of shooting indoors, are full of fun for everyone, when everything is ready in advance, and every shutter-pusher knows how the results will be enjoyed.

The first key to successful pictures is adequate illumination. One flood lamp will furnish enough light only for relatively small subjects, such as a close-up of part of a Christmas tree, the holiday dinner, gifts, toys, etc. Use at least two lights for full-length shots, groups, etc.

With two lights, either flash or flood, it is easy to get sparkle, depth and roundness into pictures. Use one lamp right at the camera for general illumination. The other lamp should be placed high and to one side.

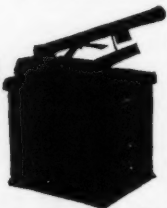
A simple way to get enough light is to use flash or flood lamps in cardboard reflectors. As little as sixty cents will provide two handy paper reflectors (Eastman or Agfa). Purchase also one No. 1 and one No. 2 flood lamp. With this outfit, and high-speed film in the camera, such as Super XX, Ultraspeed or Superpan Press, there is plenty of light for snapshots at near distances and for full room shots on time exposure. The advantage of this equipment is its low cost. Better reflectors, made of metal are slightly more expensive.

Flash lamps, used in paper reflectors, or in other reflectors, cost a little more, as one or two lamps must be used for each picture . .

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but they have the decided advantage of very high light output. Flash is best where it is important to be sure to get the picture.

The easiest and surest way to use flash is with a synchronizer. This fastens right to the camera and automatically times the opening of the shutter with the flash of the lamp. High shutter speeds may be used with small stop openings. Action can be stopped. Depth of field and sharpness is assured. Available too, are various low-cost cameras with built-in flash synchronization. Even a child can take good pictures with one of these cameras. All that he needs to know is enough to put in a fresh lamp and turn the film for each picture . . . and not to attempt pictures at too great a distance from the subject.

Correct exposure is easy, too. All that is necessary is to read the directions that come with the lamps you buy. Read them carefully and follow them exactly. Ask your dealer for a free folder on snapshots at night. Don't guess! Follow the directions.

Start planning your pictures now by studying the list on page 16. Check the pictures which you will want to take. Be sure to include outdoor shots, closeups and long shots, and do not forget any member of the family. Be sure to take some shots in advance so they can be studied and, perhaps, re-shot to get just the effect desired.

In this way, you will be sure that your 'Merry Christmas' will last, not a day or a week, but, in your pictures, for years to come.

Here are some more ideas for "Christmas Day" and "After Christmas" shooting to check and plan on shooting:

The tree and presents in the home of each of your nearby non-picture-taking friends. (One of the nicest presents you can give.)

The children in bed, sleeping with their new toys . . . and the family pet.

PICTURES AFTER CHRISTMAS

Mother and Dad looking at greeting cards.

Brother with his sled, looking out a rainswept window, woebegone.

Sister putting the first penny in her empty bank, for next Christmas.

A night-time picture of the outside of the house, with its Christmas lights.

Picture of the holiday decorations of the center of town.

Night-time picture of decorations on the homes of other people.

Visitors to the home having a bit of holiday cheer.

Mother and Dad admiring, or using, their gifts.

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9x12cm.	Wickham Tri-set Camera, Tessar Lens, case, 6 sets holders	125.00
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Lists 1000 Markets For Photographs Magazines,
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YOUR salable pictures, with their specific re-
quirements, prices, paid, etc.

Sell Photographs of Products

(Continued from page 37)

a monthly automotive service magazine which inaugurated a new and novel free service for its advertisers—Field Photo Service—furnishing photos of the advertiser's equipment or tools in various shops in different parts of the country—at no cost to the advertiser. It began as an experiment and was immediately approved by every advertiser—some of the largest concerns in that industry—including many offers to pay for the photographs. It is now a permanent part of the service of this publication to its advertisers, and more than \$200 worth of photographs are purchased each month from freelance photographers. The prints are furnished in sets of two—all 4x5"—one of the exterior of the shop or store and one interior showing the advertiser's product, tool or machine in actual service. *Automobile Digest* pays \$3 per set for good photos. Negatives must accompany all prints. Address the Field Photo Service Editor, *Auto Digest*, 22 E. 12th St., Cincinnati, Ohio. The photographer also gives a few brief facts concerning the subject—(1) the name of the shop, (2) the name of the operator and (3) possibly a comment or two of interest. These facts are rewritten into attractive captions designed to interest the manufacturers.

It is not necessary for the photographer to be a technical man for this new market. Many quite acceptable photos have been made by men who have little or no knowledge of the trade. It is only necessary to consider the viewpoint of the manufacturer and make shots which would be interesting to him. For example, a good shot of a Curtis Car Washer busy in a big, successful shop or station would be of interest to the manufacturer of the car washing machine with a few facts concerning the number of cars washed, the time, daily or weekly earnings, etc.

It is easy to tie up the shots with a good human interest story and make them more valuable. For example, young Bob Feller, Cleveland's ace fast ball pitcher, built a home as a gift to his parents. A visit to this new \$20,000 home with a good camera could net several salable shots. The manufacturer of the steel windows would certainly eat up a couple of prints—one of the house and one a close-up of a window—for publicity purposes alone. The roofing manufacturer, the maker of the driveway material, the glass manufacturer and others would all be excellent prospects for the free lance photographer willing to gamble a little time, a few films and some postage.

There are numerous human interest angles in every neighborhood. A new arms factory,

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YOU COULD GIVE

The Gift that lasts for years, and always pleases



Imagine his delight on Christmas when he discovers that, with excellent judgment, you have chosen the one gift desired above all others. Until the G-M Standard was introduced to sell for \$8.75, reliable photoelectric meters were priced so high they were actually luxuries. Every camera fan wants a dependable exposure meter to help improve the quality of his pictures; now you can afford to give this luxury.

The G-M Standard Exposure Meter, Model B (illustrated) incorporates all really worth-while features found in much more expensive meters. Its operation is simplicity itself—whether used for stills or movies, black and white or color films. It is a gift he will be proud to own.

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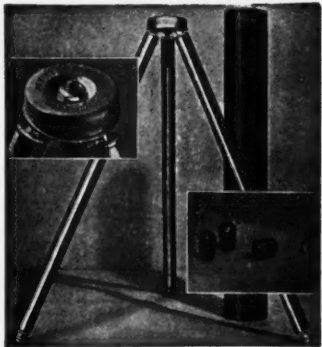
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P. O. Box 789, Dept. MM, Hollywood, Calif.

a new post office, a new office building, can harbor a number of profitable subjects to be photographed. The new dough mixer in the local remodeled bakery—the new heating plant in the district school—the steel cables in the new bridge—all these and thousands more are good subjects for free lance shots and are worth money to the maker of the product.

There is constant, desperate need for this kind of material—for house organs, sales bulletins, folders, catalogs and other promotion literature. And the photographs are a boon to industrial advertising agencies, most of whom are always in need of material on which to base advertisements.

Another profitable possibility is in the shot of an unusual use for a manufacturer's product—his product being satisfactorily used for a purpose other than the one for which it was intended—for example, a good photograph of a Nash engine driving the generator which furnishes light for an outdoor mass meeting at the Fair Grounds would be mighty interesting to Nash Motors.

Any day you feel that your nose for news is pretty sharp, take your camera, flash bulbs and equipment and amble down any street in town. If you stop in the shoe repair shop to get a shine, look around for a new piece of machinery, a new cabinet for merchandising rubber heels, or any other item. Make inquiry and jot down what the proprietor tells you, take a flash or two and make a record of the name of the manufacturer which you will find somewhere on the article—perhaps a brass name plate on the machine or a gold leaf label on the bottom of the cabinet. Then take a shot of the outside of the store and you'll have a couple of sets of trade photos which may bring you six or eight dollars.

Maybe you'll next encounter some workmen digging up the street. Get a shot or two of that fellow cutting the macadam with the pneumatic chisel, find out the name and address of the manufacturer and ask the foreman what work is being done. Keep a record of everything. You can keep this up all day without moving more than a dozen blocks. Keep your imagination alert and you'll find dozens of subjects which you can sell.

After the prints are finished, type captions similar to the following example which fits Fig. 1, page 37:

When the Woodbury Brothers quit racing, they went into the automotive service business in Chicago. Their success in this busi-

ness is due to their knowledge of automobiles and their choice of good equipment—for example, Bee Line Aligning and Safety Equipment.

The following caption would fit Fig. 2, page 37:

The Bee Line Safety and Aligning Equipment in the shop of Woodbury Bros., Chicago, Ill., is a big feature in the success of these former racing drivers in the service business.

Fasten these captions to the backs of the prints with a thin coating of paste and mail the negatives and prints (always enclosing a self-addressed return envelope) to the manufacturers with a brief note offering the prints at regular news photo rates.

The following is a typical market for the kind of photographs discussed in this article:

"We want photographs showing Masonite installations. We will pay \$5 for every picture selected and \$10 for pairs of pictures showing before and after installation.

Contest open until September 15th.

If you are planning to build or remodel with any Masonite product take a picture of the job **BEFORE** then take one **AFTER**. If possible, take the **AFTER** picture from exactly the same spot from which you took the **BEFORE** picture. You may win an award of \$10.

Send pictures to Photo Editor—*Our Home*, Room 2037, 111 West Washington Street, Chicago."

Tomorrow put a fresh load of film in your camera and see if you can pick up an extra ten dollar bill.

He Takes Great War Pictures

(Continued from page 54)

torial intelligence. His work from then on in many continents became an eloquent pictorial scrawl significant beyond careful photography. Only news-reel men felt free to operate on such a basis, but fortunately for Capa their apparatus is infinitely more cumbersome, and blow-ups from these films are never as satisfactory as still photographs taken under the same circumstances.

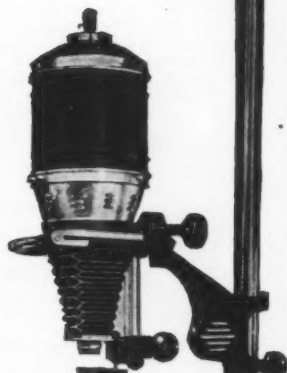
For sometime in both Spain and China Capa experimented with movie cameras, but found them invariably less satisfactory for his purposes. Nor is the quality of his work comparable to the stuff that is turned out by ordinary news photogra-

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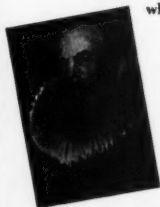
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Write Don't M.

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phers. In Capa's pictures I find, as I do in Henri Cartier's, (MINICAM, May, 1939), a quality of imminence which is as tangible as the quality of aesthetics in the work of Blumenfeld. (MINICAM, October, 1939.)

Although perhaps worlds apart in intention, the work of all good photographers conveys to the beholder a clear and unmistakable sense of imminent achievement.

The War in the Air

(Continued from page 27)

photographed from newspapers and magazines, by means of a closeup lens or extension tube on your camera. There is no objection to doing this, but it goes without saying that copied pictures should not be circulated, sold or passed off as originals.

Small objects can be drawn in silhouette by hand and then photographed. These include distant planes, barrage balloons, descending parachutes, etc.

This time of the year it is easy to get negatives of belching smoke by snapping a few chimneys on cold mornings. The smoke negative is covered with "opaque" to block out all but the smoke area. The edge of the opaque line can be softened by use of red "New Coccine" dye (obtainable at your photo store) along the edge to blend the line.

The fun begins after enough negatives are assembled and you have your planes, boats, smoke, etc. Make a sketch 8x10 inches, or whatever size the final print is to be, showing the approximate size and position of each object. Place this sketch in the enlarging easel, project one of the negatives, focusing to the right size. Make a test strip of it to determine correct exposure.

Then remove the negative and follow the same procedure for the other negatives. After correct exposure for each negative (focused to the desired size) has been determined and written down, remove the layout sketch, and insert a sheet of sensitized paper.

Focusing now will be done through the

red filter. The background negative is exposed and then the others in turn. After the negatives have all been exposed on the sheet of paper, to the size and position desired, the sheet of paper is developed in the usual manner.

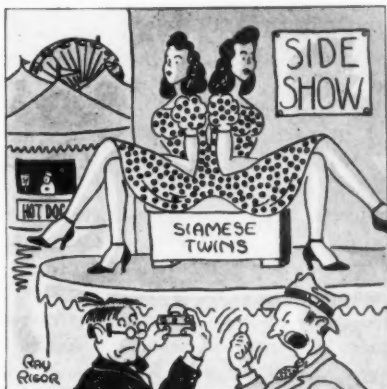
It is not entirely necessary to focus through the red filter. Instead, the paper can be marked for position, and removed between exposures, as each new negative is focused on a blank sheet.

For more on the naval aspect of this type of work, see the article, "Shoot a Naval Battle," in August MINICAM.



The smoke from the snapshot, enlarged, furnished the smoke plume for the falling airplane on page 27.

Now is the time to start assembling a set of "war" negatives so the next time you read about an important military engagement, you will be able to recreate the scene in your own darkroom.



"Wait, my freind; you'll get a double exposure."

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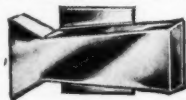
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Roll film any size, including 35mm 18 or 36 exp. (developing only)25
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"KNOW YOUR NOSES." By John Hutchins, A.R.P.S., faculty instructor of the School of Modern Photography, and author of this month's article, "What If She Isn't Photogenic."

"UNCLE SAM WANTS PHOTOGRAPHERS." How amateur photographers, whether enlisted or drafted, can get into the photographic sections of the army.

"QUESTIONS THEY ASK ME." The old-timer answers beginners' problems.

"ILLUMINATING YOUR DARKROOM." Lighting principles for the darkroom.

"SNOW AND WINTER PHOTOGRAPHY."

"WHAT IS COLOR TEMPERATURE?"

Photography and the Draft

(Continued from page 19)

to record the sequence of all the 9,000 numbers, starting with 158 which was read by President Roosevelt. This provided one record.

But a single method was considered inadequate. Once the drawing started, there could be no delay or stopping, no matter if the mechanism did break down. And it might. Besides that, something might happen to the sound record. As soon as a number had been read, it was placed besides some other significant articles and photography's work began. There were little cards showing the day of the week and the month and whether the hour was A.M. or P.M. There was a railroad watch and a mechanical counter. All these were photographed beside the lottery number.

The counter was for convenience, indicating the order in which the number was drawn. Should it break down, the watch would show the exact second. If anything happened to both counter and watch, the exact position of the registrant's number, with reference to all others drawn, could be determined from the sequence of the negatives on the 16mm. film.

After being photographed once, with this set-up, the lottery number was immediately photographed again on another identical set-up. The watch, of course, would read a few seconds later than the first one. The instruments used were Eastman Recordak Juniors, with

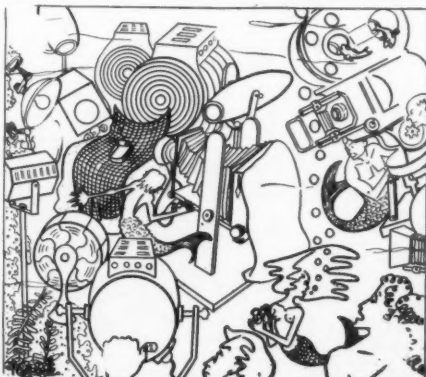
slight modifications for the occasion.

With these infallible records of their sequence thus completed, the lottery numbers passed into the jurisdiction of Capt. William Hart. His job was to see that official, and absolutely accurate, lists of the lottery drawing were in the hands of the more than 6,000 local selective service boards as soon as possible.

As soon as photographed, each number was pasted down, in its proper order, on a sheet of cardboard, which held 250 numbers. These sheets were photographed as soon as they were filled, this time by a larger Recordak, on 35mm. film. Prints of the film were made and from them plates were prepared for reproduction by the photo-offset process.

Because photographic methods were used, there was no chance of a mistake at any moment after the number was drawn and read. What was on the lottery slip was bound to appear on the negative. What was on the negative would be on the print. And what was on the print would be on the plate and would be printed on the list which went out to the selective service boards all over the country.

No tired clerk, no wornout printer, no jaded proofreader could affect a digit of the record. Less than 48 hours after the drawing began, complete printed lists were in the mails, bearing official confirmation of the position of every one of the 9,000 numbers. Said Dr. Dykstra: "A splendid job!"



"I know it's a sardine can, pop—but the great Mr. Beichen is photographing it!"

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Chicago, Illinois

**THE "PRIZE" ON THE CHRISTMAS TREE—
A DALLMEYER TELEPHOTO**



Here's Why—

**EXPERIENCE
RAW MATERIALS
OPTICAL MANUFACTURING
MECHANICAL PRECISION
CORRECTIONS
UNIFORMITY
DESIGN**

Among all the gifts at Christmas time none will give greater or longer enjoyment to any camera fan than a world famous Dallmeyer Telephoto Lens.

For Movie or Still cameras. Write to your dealer for a circular stating make and size of camera to be fitted.

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50 ft. \$2.00	50 ft. \$2.25
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in Full Natural Color

A new, inexpensive method of making color prints of your favorite Kodachromes. Each enlarged print is reproduced in true color. Beautifully mounted — they make ideal Christmas gifts. Send Kodachromes with cash or check. **SATISFACTION GUARANTEED**, or money will be returned immediately.

35mm ROLL DEVELOPING and 36 (3 1/4 x 5) PANEL PRINT ENLARGEMENTS delivered postpaid in LEATHERETTE ALBUM, all for

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3 for \$5 — same, or 3 different negatives.

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★ NEWS

ABOUT PHOTOGRAPHIC PRODUCTS

GoldE Slide Projector

The GoldE "Manumatic" Slide Projector (\$35.00) takes 2x2" glass or paper mounted 35mm. or Kodak Bantam size slides.

Slides are fed in at the right of the Manumatic Slide Carrier and are automatically stacked in sequence on the left side after projection. Slides are said to slip into place without jerking, and spring clips hold slides in position, compensating for the difference in thickness of glass and paper mounts. The carrier holds 50 paper or 20 glass slides.

Available in 100, 200, and 300-watt sizes, the GoldE Projector is equipped with heat-proof lamp socket. Top of projector is removable for lamp changing.

Projector frame is cast aluminum finished in baked enamel. Forced cooling is provided by built-in silent fan. Heat-absorbing filter is said to be free from discoloration. Knurled knob on mount of 5" projection lens affords fingertip focusing. Vertical adjustment is provided.

See dealers for literature, or write GoldE Manufacturing Co., 1216 W. Madison St., Chicago, Ill.



Movies Make Christmas Gift

Castle Films home movie subjects (both 16mm. and 8mm., either sound or silent versions) are suggested as Christmas gifts. Subjects include:

A Christmas fantasy "Santa Claus' Story" in which St. Nicholas tells the children about Monkeyland's holiday, "Boy Meets Dog," an animated cartoon in which pixies take in hand an unreasonable father, and "New Parade of the Year—1940" a review of world-shattering events, picturing Britain's stand and the signing of the French armistice.

Other subjects are: "Gay Nineties Live Again," "Football Thrills of 1940," and "Ice Carnival."

For catalog describing these and other film subjects, see local dealer or write: Castle Films, Inc., 30 Rockefeller Plaza, New York City.

Metal Letters for Titles

The Master Title Kit (\$12.50, complete) consists of 222 white all-metal characters, including upper and lower case letters, assorted numerals, and punctuation marks, suitable for home movie title-making.

Letters may be tinted with water color for use in Kodachrome — full-color titles. Washable paint on letters permits easy removal of color for black and white titles later. Pin back letters are available, on special order.

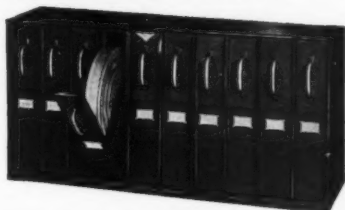
Printed die-cut celluloid composing template, furnished with set, makes alignment of letters on title background quick and easy. Complete instructions for making perfect titles included with set.

At dealers or write the American Bolex Co., Inc., 155 East 44th St., New York City.



Sectional Cabinets for 16mm. Movies

Built of steel with double-wall construction, the Neumade 16mm. sectional cabinets (\$2.00 a compartment) hold one 400-ft. reel in each section. Separate doors, handles, and index card holders are provided.



Doors have special reel carriage and close automatically when reel is inserted. Made in units of 5, 6, 8, 10, or 12 compartments.

For further information or catalog write: Neumade Products Corp., 429 W. 42nd St., New York City.

Individual Movie Title Service

Luminate Products' Home Movie Titles (8mm. black and white or colored base, 25c each; 8mm. natural color, 75c each; 16mm. black and white or color base, 35c each; 16mm. natural color, \$1.00 each) will be made up according to customer's own wording at these prices if the wording is such that the titles may then be added to the regular line.

When personal names or addresses are included in the titles, the average charge is about double that for standard items. Company offers selection from 350 separate subjects with at least four variations of each title. Line is said to be constantly expanding.

For further information see your dealer or write H. M. West, Luminate Products, 7315 South Vermont Ave., Los Angeles, Calif.

Versatile Big Light

The Britelite "Universalite" (\$57.50, complete) consists of a stand, special focusing device, and accessory reflectors. Lamp housing is of strong aluminum and accommodates pear-shaped bulbs such as the PS-52 2000-watt movie flood, or the No. 4 photoflood lamp. Socket is mounted on focusing device to permit centering of filament.

Clutch yoke connecting housing through a swivelling device to the stand provides a 360° field of adjustment. Universal stand is constructed of aeronautical aluminum in three sections, telescoping to a height of 15 ft., with a low position of 18".

Demountable base legs have rubber-tired, ballbearing casters. Armor-clad plug and 20 ft. of No. 14, 40% rubber-covered heavy duty cable come with light.

At photographic dealers, or write: Motion Picture Screen and Accessories Co., Inc., 351 West 52nd St., New York City.



The Gift For Every Amateur! PRO-TILT Professional Model TRIPOD HEAD

Finished in BLACK CRINKLE or NATURAL ALUMINUM



Over all weight 1 1/2 lbs.

\$725 at your dealer

Full circle panorama, without vibration. Full right angle tilt.

3 3/4"x4 1/2" base, felt covered; 3 screw holes assure perfect camera balance, all makes; extra large base makes PRO-TILT favorite with Speed Graphic, Reflex owners. Has 10" handle with full grip, non-slipping knurled handle hold. Tripod base 2 1/2" diameter, aluminum alloy. All fittings of hard Bural, Aluminum or nicked brass, assuring long wear and lasting surface. Large head favorite of 8 & 16MM owners.

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16 mm ENLARGEMENTS

We make perfect enlargements of your most cherished movie shots at almost "snapshot" prices. Our own special process used. Eight prints. 3x4 1/2" joined together in a beautiful sequence folder for only \$2.00. An ideal Xmas gift. Just notch frames you want enlarged and send strip of film or entire roll to us. We do not splice or cut your film.

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8 Enlargements
3x4 1/2" framed in
special sequence
folder.

\$2.00

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CAMERAS
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★ ★ EUCLID SHARPSHOOTER ★ ★ Stop Burned Fingers — See What You're Shooting — Intense Solar Beam

\$1.65

How's your sharpshooting? Try Euclid's Midget Bulb Adaptor with peep aiming sights and finger-protecting bulb ejector. Adjustable to spot or

wide range. See this efficient beam reflector today at your dealer's. Or write . . .

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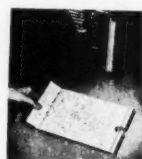


20 35 mm. 2x2 SLIDES \$1

Unusual scenic, travel and educational views—including many in beautiful toned colors—mounted, complete, ready to show in any standard projector.

Ten 2 x 2 Art Slides \$1.00

ART SLIDE CO., Sippl Lake B-5, Canton, O.



DARKROOM EFFICIENCY with the ALL METAL SPEED-EZ-EL

Faster—Easier to use. Critical focus on easel. Special matte finish reflects image without glare. Compact. Shiftability allows many compositions from one negative. Gives even 1/4" borders. NO TRIMMING—NO ADJUSTMENTS. If dealer can't supply, order direct. Sent prepaid if cash with order.

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112 No. Hayworth, Hollywood, Cal.
Dealers — Jobbers. Write Western Photo Distributors, Los Angeles.

3 1/2 x 5 — .75; 4 x 5 — .75
5 x 7 — 1.00; 8 x 10 — 1.50



MORGAN SPECIAL GADGET BAG \$11.75 Postpaid

Made of selected elk cowhide leather, rich tan tone. Contains three large inside pockets, four small snap pockets on lid, one inside zipper pocket, also large outside pocket. Ten compartments in all. Send for one today, money refunded if you are not satisfied.

Write for your free copy of the Morgan Camera News
MORGAN CAMERA SHOP
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Up to 4x5
\$1.00 per set

35 mm
Enlarged to 4x5
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CANDID FILMS

Developed & Enlarged

ONLY
50¢

Your films carefully developed in the finest of fine-grain developer — VAPORATED — and enlarged on Eastman's finest paper. Absolute satisfaction guaranteed. Here is our "get acquainted" offer; you can judge the quality of our work yourself.

18-Exposure Films developed and enlarged to 3 1/2 x 4 1/2 \$0.50
16-Exposure Films developed and enlarged to 3 1/2 x 4 1/2 1.00
12-Exposure Films developed and enlarged to 3 1/2 x 3 1/250
Reprints for all above each .04

Complete Price List and Mailing Bags FREE

AMERICAN PHOTO SERVICE 2644 Nicollet Ave.
Minneapolis, Minn.

Craig DeLuxe Rewind

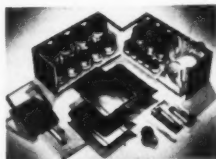
The Craig DeLuxe Rewind (\$6.00 each, \$12.00 a pair) takes 8mm. and 16mm. reels up to 2000-ft. capacity. Has locking device on the spindle and an adjustable brake to provide tension and speed control. Extra long handle said to give smooth operation. Finish is highly polished chromium plating.

Manufactured by the Craig Movie Supply Co., Los Angeles, Calif.

Photographic Chemical Set

The Photo-Chem Lab (\$11.95) contains working quantities of 20 high-quality photographic chemicals, both standard chemicals and lesser known kinds. Laboratory scale, glass graduate, beaker, and litmus paper included, as shown in illustration.

"Solutions for Your Photographic Problems," the instruction book supplied with the Photo-Chem Lab, starts with the basic principles of photographic chemistry and tells in language every amateur can understand how to make up photographic solutions. The use of every important photographic chemical is discussed and how it aids or hinders the making of good negatives and prints is told.



The second section of this book contains a complete formula giving scores of up-to-date formulas for developers, reducers, intensifiers, toners, fixing baths, acid rinse baths or short stops, etc.

Photo-Chem Lab is made up by J. V. Mansfield, Ph.D., Mansfield Photo Research Laboratories, 701 S. LaSalle St., Chicago, Ill.

Titling Home Movies

The "A to Z" Movie Titling Outfit and Figurettes (\$3.00) are sold in a Christmas gift package that also contains an "A to Z" Title Frame that takes titles up to 7x9".

Combination Christmas wrapped outfit is obtainable only from the manufacturer: The "A to Z" Movie Accessories Co., 175 Fifth Ave., New York City.

Elart Enlarger Units

Elart Enlarger Unit No. 6 (\$54 without lens) takes negatives up to 2 1/4 x 3 3/4", and has counter-balanced head that swings in both vertical and horizontal planes.

Reflector is provided for viewing f-stop numbers on side of lens barrel, and tilting baseboard automatically returns to horizontal plane when released. Automatic rotation of negative carriers is provided; carriers are rotatable 340° in horizontal plane.

Enlarger has double-extension bellows, detachable lens board, double condenser lighting system and adjustment for varying distance from center of lens to supporting column. Lamphouse has positive draft ventilation.

Elart Enlarger Unit No. 5 (\$42.50 without lens) has plane baseboard instead of tilting board with automatic return to horizontal position. Machined cast-aluminum construction in both enlargers.

For further details and list of accessories which permit machine's use as studio tripod, projector stand, or copying stand, write: L. R. T. Industries, 310 Yonkers Ave., Yonkers, N. Y.

Boes Bulk Film Winder

The Boes Model A Film Winder (\$4.50) takes 100-ft. rolls of Eastman 35mm. film or 50-ft. rolls of other popular brands. Permits reloading standard film cartridges which lowers cost-per-frame of miniature camera negatives.

Bulk film storage chamber is normally closed when spool leaders are threaded. Film gate can only be opened when outer door to Film Winder is fastened in place.

Wide opening in film gate prevents film from touching winder at any point, except along sprocket holes which pass over counter sprocket. Winder permits reloading any length with exact frame count always visible.

For further information see dealer or write: W. W. Boes Company, 3001 Salem Ave., Dayton, Ohio.

Spot Light For Outdoor Pictures



A portable Baby Beacon (about \$12.00) the size of a Graflex and weighing less than 5 lbs., has a 180,000 maximum beam candlepower. Used with a 45-volt, 30-cell battery that stands about 5 1/2" high and provides full half hour of illumination.

Beacon was originally designed as an emergency light for airports, fire and police departments, and is also useful where strong spotlight is desired in room not wired for standard lighting equipment.

Light resembles a small automobile headlight, but is so powerful a newspaper can be read by its light from a distance of half a mile. At 100 feet the light furnishes 18 foot candles, equal to average office illumination. At arm's length from the subject, 45,000 foot candles are produced, illumination four and a half times as bright as sunlight on a spot of the same size.

Flashed from a commercial transport plane across the clear reaches of the sky at 9000-ft. altitude, the Baby Beacon was seen by the pilot of another plane 55 miles away. In a second test the pilot radioed that he was able to read the printing on a package of cigarettes by the light of the lantern, flashed from the other plane which was still two miles away.

For further information write: The Burgess Battery Co., 500 West Huron St., Chicago, Ill.

Duckies Print Tongs

The B W "Duckies" Print Tongs (30c a set of two) are designed to provide a three-way pick up on the gripping end. Made of Tenite, the tongs are said to



be absolutely non-absorbent and stainproof. Side projection prevents tongs sliding into tray.

Manufactured by B W Photo Utilities, 1346 East Walnut St., Pasadena, Calif.

Celebrate Decade of Flash Photography

Over 2150 camera fans jammed the ballroom of Philadelphia's Broadwood Hotel, October 17th as Klein & Goodman, Philadelphia camera shop, celebrated the 10th anniversary of the photoflash lamp.

The four-hour program included displays by General Electric Co., and Wabash Photolamp Corp., with Willard D. Morgan speaking on "Synchronized Flash Photography."

After a demonstration of the Kodatron speedlamp, which stops action at 1/30,000 second, members of the audience were invited to the stage to take pictures with this ultra-rapid flash lamp, using their own cameras.

GUARANTEED—To read lower
fawlight and higher highlight in-
tensities more accurately than any
other Meter....regardless of price.

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ELECTRIC EXPOSURE METER
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CRAIG SENIOR SPLICER

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NEW, FREE FOLDER

CRAIG MOVIE SUPPLY COMPANY
1053 S. OLIVE ST. LOS ANGELES, CALIF.

FINEST Slide Projection with the new GOLDE MANUMATIC



The only 2x2 (35 mm.) projector with ALL these quality features: **Fan-Forced Air Cooling** for absolute protection against heat damage to lenses or delicate transparencies—**Patented Manumatic Slide Carrier** handles slides smoothly—**automatically stacks 50 paper or 20 glass slides—Instant Focusing** to hair-line sharpness—**Perfected Optical System** with triple condensers, heat absorption filter and 5 in. F:4 lens—**Cast Aluminum Body** for light weight and rigid strength.

For 100, 200 and 300 Watt projection,

See Your Dealer—or write to
GoldE Mfg. Co. 1216 W. Madison St.
Chicago, Illinois

OLDEN CAMERA & LENS CO.

1265 BROADWAY, NEW YORK, N.Y.

35 MM		REFLEX	
Perfex 44, F3.5		Rolleicord IA F4.5	46.00
coupled	\$ 19.35	Korelle Reflex, I;	54.00
Leica G, Summar		Argoflex, F4.5, latest	22.00
F2	105.00	Contaflex, Sonnar	138.00
Contax II, F2	127.00	F2	
Kodak 35mm epid.		Naxi, Graflex II,	
rge finder lat-		F3.5	48.00
est	37.00	Graflex B, F4.5	42.00
Argus A	\$5.00	Rolleicord IIA,	
Mod. C	11.00	F3.5	63.00
Univex Merc'y,		Ikontex III, Tessar	
F3.5	12.00	2.8 latest	135.00
Perfex 55, F2.8		Beier-Flex; F3.5	44.00
latest	31.00	Rolleiflex, Automa-	
Dollina II, F2.9		tic latest	105.00
cpr	29.00	Rolleiflex, 4 x 4,	
Leica D, Elmar 3.5		Tessar 3.5	55.00
Contax I Sonnar	95.00	Pilot "0", F4.5,	
Contax III, Sonnar		Special	15.00
3.5	158.00	Exakta B Xenon F2	110.00
Dollina III, F2.9		Autoflex 2.9 cpr.	48.00
cpr	38.00		
Argus C2, \$16.00;			
C3	21.00		

6x9 FILM PACK CAMERAS 9x12

Voltlander, Avus		Recomar 33, F4.5	39.00
4.5	28.00	Maximar B, Tessar	
Rodstock, Elmar		4.5	44.00
2.9 cpr.	42.00	Bee Bee, F4.5 cpr.	32.00
Certo, Xenar 3.5		double extension, 6x9 and	
cpr	39.00	9x12 from \$29.00 up.	

MISCELLANEOUS

Instruction booklets for all imported and domestic cameras	\$.25
Super Ikonta B, latest 2.8	108.00
S. S. Dolly rangefinder, Tessar 2.8 \$47.00; S. S. Dolly, Xenar 2.8, cpr.	38.00
Miniature Speed Graphic, 4.5 — \$74.00; Weston Master	16.50
Elmar 3.5; Scm. for Leica	26.00
Hektor 73mm F1.9 — \$72.00; 135mm for Leica	62.00
Sonnar F1.5 — \$54.00; Sonnar 135mm	94.00
Foth Derby F3.5, Rangefinder, latest	21.00

50 ENLARGERS, slightly used, all cameras and dark room accessories available. Write your wants.

- 200 MOVIE CAMERAS AND PROJECTORS**
Write Your Wants — **BARGAINS**
FAIR ENOUGH?
- (1) All these cameras are in like new condition.
 - (2) They are optically and mechanically tested, are in perfect working condition and have a clean appearance.
 - (3) Each camera is registered and fully guaranteed.
 - (4) Send us your money order and the camera will be shipped by return mail on our ten day trial basis with money back guarantee. Trade-ins accepted.

2 YEAR RENEWAL \$4.00

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35mm FILM
ultra FINE GRAIN DEVELOPED
AND VAPORATE TREATED **25¢**
for your future protection

DEVELOPING - VAPORATE & STRIP
PRINTS IN CONTINUOUS STRIP
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3 3/4" x 4 1/2" GLOSSY ENLARGEMENTS
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DEVELOPIX
Flannery Bldg. New York, N.Y.

Speedy Process For Color Prints

The Iso-Color Process Kit (\$5.95, complete) contains seven vials of dry chemicals sufficient for making at least 20 8x10" color prints from separation negatives. Instruction book contains necessary formulas and is said to be written in easily understandable manner.

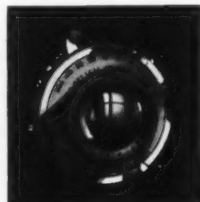
Iso-Color Process is claimed to have reduced the making of color prints to nine short working steps no more complicated than those required for making a black and white print.

Speed is such that beginner can make a print in from 45 to 60 minutes and the experienced color worker can produce a print in from 25 to 30 minutes. Process is said to be fastest now on the market.

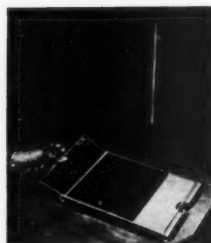
For further information see local dealer or write: Spectrum Products, Inc., 33 West 60th St., New York, N. Y.

No. 00-Acme Shutter

The Ilex No. 00-Acme Shutter has speeds of 1 second, 1/2, 1/5, 1/10, 1/25, 1/50, 1/100, and 1/300 of a second. Shutter is set by light finger pressure on button. For further details on prices and models write the manufacturer, the Ilex Optical Co., Rochester, N. Y.



Metal Projection Easel



The Speed-Ez-El all-metal projection easels (five sizes from 2 1/2 x 3 1/4", 6 1/2 x 8 1/2", 8 1/2 x 11", 11 x 14", and 14 x 17") take standard size paper, inserted from the end. Lifting and adjusting of border clamps is eliminated, with even borders assured.

Easel has non-skid base said not to scratch or mar baseboard or table surfaces. Raygram Corp., 425 Fourth Ave., New York City, is eastern distributor. Distributed in west by Western Photo Distributors, 1010 1/2 S. Olive St., Los Angeles, Cal.

National Photo Lab's Album

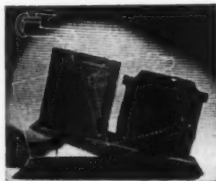
National Photo Laboratories wishes to correct the impression given on page 101 of our November issue. Prints are not slipped into the bristol board pages bound in their album. Instead the prints must be mounted on these pages. For further information write: National Photo Laboratories, 55 West 42nd St., New York City.

Teeter Tank Agitator

The Weaco Teeter Tank Agitator (\$1.90) is placed under a water faucet and water is turned into the container seen at left in the illustration.

Full container tips tank as shown by dotted lines, producing non-directional agitation, it is claimed. This is said to produce even distribution of the developer over the film area, decreasing development time and reducing grain size of negative image. Device is said to operate quietly.

Made by Warren Electric Appliance, Warren, Pa.



School of Aerial Photography

The Academy of Aerial Photography, Inc., is said to be the only civilian training school in North, South, or Central America at which courses are offered in the four branches of Aerial Photography: (1) for the aerial photographic pilot, (2) for the aerial cameraman, (3) for the photographic chemist and laboratory technician, and (4) photogrammetry for the mapping engineer. Courses are designed for both Civil (commercial) and Military purposes. Kenneth A. Smith, President of the academy, writes:

"Our minimum primary training course is of four months duration—(16 weeks with a total of 592 class hours). This is in both theory and practice; and then 8 weeks or more for the course giving experience and training including a minimum of 50 hours of certified flight experience for the pilot or cameraman.

"The advanced or post-graduate courses numbers VII, VIII, and IX, or the complete post-graduate course number X, requires additional time. These latter courses consist of training in the natural color processes (kodachrome, etc.) as well as infra-red films, multi-lens cameras, etc.

"Courses of the academy closely follow those of the training given the officers and men at the Air Corps Technical Training School, Lowery Field, Denver, Colorado, and also cover civilian and commercial needs.

The faculty of the academy have been for years doing their type of work as well as approved government mapping and photographic contract work.

"Entrance qualifications are rigid and a student completely finishing the courses offered will find no difficulty in the direct commercial or governmental fields."

For further information write: Registrar, Academy of Aerial Photography, Inc., 3636 Beverly Boulevard, Los Angeles, Calif.

Name Dalite's New Screen

Da-Lite Screen is offering \$1050 in 139 prizes for the best name for its new glass beaded tripod hanging screen. First prize is \$200.00 cash, and there are three second prizes of \$40.00 each. The balance of the prizes are in merchandise. Contest closes December 31st, 1940.

Submit your name for the new screen which has these features: A triple duty, glass beaded screen that can be used as a tripod screen, as a map type hanging screen, or as a table screen. It is 30 by 40 inches in size, priced at \$7.50.

Address entries to Da-Lite Screen, 215 N. Michigan Avenue, Chicago, Ill.

Lecture on Flash Photography

Karl A. Barleben, F.R.P.S., has prepared a lecture, "Modern Flash Photography," illustrated by slides and movies.

Camera clubs desiring bookings should write: Goodspeed, Inc., 220 Fifth Ave., New York City, for open dates.

Kalart Free Trial Offer

Opportunity to test the correct model of Kalart Speed Flash on your own camera without cost is now provided by the Kalart Company. Flash bulb for the test is furnished by the dealer.

For further information see Kalart dealer.

NEW! Weaco "De Luxe" ROTO Print Dryer

Equipped
With a
Squeegy
Rubber
Roller



\$14.50

Complete

THIS new Squeegy Roller eliminates the drudgery of squeegeeing glossy prints, and is highly recommended for matte prints because the roller squeezes the surface moisture out of the print, thereby causing faster drying. 12"x28" chromium surfaces. Dries prints in from four to eight minutes. Uses only 160 watts on 115 volts. AC or DC. Squeegy Roller Attachment, to fit other Weaco Dryers, may be purchased separately at \$3.75.

At your dealer, or write for more details!
WARREN ELECTRIC APPLIANCE CO.
Warren, Pa.

100 FT. 16 MM. AMBERTINT FILM

Includes Machine

Fine grain. rev., safety film. Packed on daylight spool ready to load and shoot.

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Southgate Write for Bulk Film Catalog California

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Send for free mailing bags, samples, prices.

NATIONAL PHOTO LABORATORIES

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Jacobs 5x7" Contact Printer

The Jacobs Perfect Printer (\$4.50 complete) has a sponge rubber platen and strong spring said to give uniform pressure over printing surface. Rear section of platen grips paper before hand releases paper to make complete contact.

One glass mask for standard size prints furnished with printer. Interchangeable masks in other sizes cost 10c each. Printer has automatic contact switch, ground glass diffusion of printing light, sockets for safe light and printing lamp, and six feet of rubber cord.

For further details write: Jacobs Photo Products, 4571 Kings Highway, Brooklyn, N. Y.

Enlargements from 16mm. Movies

A set of eight 3x4 1/2" enlargements from individual frames of 16mm. motion picture film (\$2.00) is made and mounted in a folder that provides an easel display.

For this service write: Dan Higgins, 527 Main St., New Rochelle, N. Y.

Photo-Compact Saves Darkroom Space

The Photo-Compact (\$34.50 complete) combines the functions of enlarger, contact printer, safelights and work-shelf in one collapsible unit that requires only one cubic foot of storage space when dismantled.

As an enlarger it takes negatives from 35mm. to 3 1/2 x 4 1/4", as contact printer it takes negatives up to 4x5". Built-in light dodger, receptacle for timer or foot switch and safelight switching arrangement are provided. Micrometer focusing on enlarger.

For literature write: Photo-Compact Corp., 1472 Broadway, New York City.

Simplified Color Print-Making

Color prints from Kodachrome are no longer beyond reach. There are now several processes available, of such extreme simplicity that practice bears out the manufacturers' claims that any competent amateur photographer, who makes a good black and white print, can make a good color print.

One process uses the familiar Velour Black emulsion. This process, the Defender Chromatone, uses a system of toners identical in manipulation to the sepia; the difference being that instead of sepia, yellow, cyan (blue) and magenta toners are employed. A full natural color print may be made by this process in less than one hour.

The Curtis Orthotone Process permits making 100 or more duplicate prints from a set of matrices. The matrix making is correlated to the appearance of three black and white Kodabrom prints, made from the separation negatives. This process too, is easy and the amateur has no difficulty in mastering it.

The Carbro Process, long considered "tops" for color rendering, is now available in a National Photocolor Kit which includes a set of bromide prints from which the user can make his first Carbro. A Carbro Kit from another manufacturer, Devin McGraw, features manipulation in any darkroom, almost independent of the temperature factor, which for many years made Carbro difficult to work.

If getting separation negatives keeps you from color, you can now have them made commercially from Kodachrome, by Fotoshop, 18 East 42nd Street, for a nominal sum. The separations are made under scientific control beyond the capacity of the average darkroom, and are almost absolute in perfection of balance. Such separation cost only \$1.00 or \$1.50 per set, contact or enlarged, making the total cost for a color print under \$2.00.

Adjustable Picture Frame

The Framette (50c a set) is adjustable to all sizes of mounts up to 20x26". No. 2 picture wire is provided with each frame.

Sold by A. J. Ganz Co., Hollywood, Calif., and Western Photo Distributors, 1010 1/2 S. Olive St., Los Angeles, Calif.

Lafayette Camera Catalog No. 81R (free) lists a complete stock of cameras, enlargers, film, printing paper, chemicals, and new photographic accessories and supplies. For copy write nearest branch outlet of Lafayette Camera Division, Radio Wire Television, Inc., 100 6th Ave., New York, N. Y.

Electric Pencil

The Electric Pencil (\$1.00 complete with a roll of gold, silver, and black foil) engraves name, address, or holiday greeting on wood, cardboard, leather, etc. Pencil has heating element that operates in the metal tip of the pencil. Foil is laid over card or article to be inscribed and hot point is applied to foil. Either lettering or hand writing can be applied.

For Electric Pencil or further information, write: Graphomat Corp., 150 W. 23rd St., New York City.

Von-L Color Developers for Paper

Von-L Color Developers for paper (set of 7 capsules, \$2.75, shipping cost averages about 25c extra) are said to produce stable chemical compounds in the emulsion giving permanent colors. Can be used with Bromide and Chloro-Bromide papers.

The shadows in the developed print are claimed to be color developed more deeply than the highlights, with the white areas either left clear or color developed as desired.

Range of hues provided by set of seven color developers is from lightest yellow through gold, red, brown, green, blue, violet, to deepest velvet blue-black.

Colors are packaged in dry form, each capsule making one quart (1000cc.) of working solution. Most of the working solutions are said to keep indefinitely and can be used for from 150 to 300 prints if not contaminated.

Multiple-color developing is claimed to be possible, by simply mixing the various developers into a single solution. Process can be stopped when desired shade is produced in print, and tonal shades are said to be true when viewing either wet or dry print.

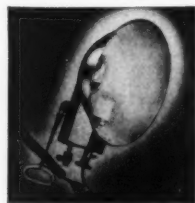
For set of Color Developers or Bulletin No. 3, describing them, write: Mon-Blanc Photo Chemical Laboratories, Fort Wayne, Ind.

Germain Fine Grain Developer

This developer is now made in liquid form, compounded with distilled water. Sold exclusively by Penn Camera Exchange, Inc., 126 West 32nd Street, New York City.

M. P. S. A.'s No. 20 Superflector

Due to an error in our November issue, the Motion Picture Screen and Accessories Co. advertisement contained a picture of the Britelite Sunspot (which lists at \$10.95) alongside of some reading matter describing their No. 20 Superflector (which lists at \$3.50).



No. 20 SUPERFLECTOR properly centers either No. 1, No. 2 Photoflood A 25' or 500-watt T-20 bulb. \$3.50



BRITELITE SUNSPOT has a 4 1/2" diameter Fresnel lens, uses No. 1 Photoflood. With bulb and table base \$10.95

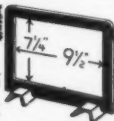
The results were confusing, as many readers sent in \$3.50, expecting to receive the more expensive Britelite Sunspot. Although not the fault of the magazine, we deeply apologize for any inconvenience caused our readers, and trust that the items illustrated above will be recognized as such by our readers.

FREE "A to Z" Title Frame

Given Away with the Purchase of our SPECIAL CHRISTMAS PACKAGE

- 1—"A to Z" \$2.00 MOVIE TITLING OUT-FIT. Famous trace-a-title method used thousands.
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- 3—FREE—"A to Z" TITLE FRAME. Always upright, convenient, detachable.

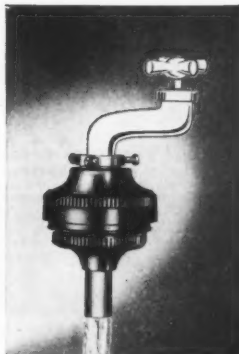
ALL 3 COMPLETE FOR ONLY \$3.00 POSTPAID. Order direct. "A to Z" Movie Accessories Co., 175 Fifth Ave., Dept. L, N. Y. City



Removes the impurities which cause negative and print damage, and gives you foto-pure water right from your own faucet. ELKAY FOTO-PURE WATER FILTER, only \$3.50 complete.

At your dealer's, or write for folder.

Made in U. S. A.



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Any 6 or 8 Exposure Film Developed including six or eight guaranteed Ray-Kraft, deckle-edged prints and one 5x7 Panel or Luxe matte enlargements, or two 4x8 gloss enlargements. All for 25c coin. Send this ad with order and we will be glad to send you our booklet "How to Take Better Pictures."

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Printed size 3x4..... 50c
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RAY'S PHOTO SERVICE

701 Ray Bldg., LaCrosse, Wisconsin

What if She Isn't Photogenic

(Continued from page 25)

A retouching pencil easily "builds up" the shadow area around the eyes. When miniature negatives are used, an enlarged negative can be made on direct copy film and then retouched. It is also easy to lighten up a shadow area of this size directly on the print by "chalking."

• **WHETHER OUR** subject is a man or woman, the same principles apply. There are certain types of heads which should never be taken in profile. See Fig. 8. Always consider the shape of the head first. The distance A-to-B in the diagram is greatly exaggerated, and a profile shot of this type of head makes the chin appear to be very weak because of the extreme slant of the line from A-to-B.

Fig. 9 shows the same face taken full toward the camera. The general shape of the head in this position is much better and the flat lighting minimizes the length of the nose.

The relative proportions of the forehead, nose, and lower face are quite pleasing. But look at those ears sticking out on each side of the somewhat narrow head. Observe how long the face appears. We can conceal one of those ears by turning the head to the right. The result becomes Fig. 10. In this position and with this forty-five degree lighting, we find that, (1) the nose is rendered proportionately, (2) the head is presented attractively, (3) only one of the ears is showing and, (4) the individual characteristics of the subject are still enough in evidence so that the finished portrait really looks like the sitter. The subject's photographic faults have been minimized without changing his appearance.

Study the features of your subjects and you will soon find it easy to make pleasing portraits that bring out their best qualities.

Book Reviews

THE AMERICAN ANNUAL OF PHOTOGRAPHY 1941. Edited by Frank R. Fraprie and Franklin I. Jordan. 276 pages (not including advertising), illustrated, 7½ x 10 inches. *American Photographic Publishing Co.* Price, paper \$1.50; cloth \$2.25.

The fifty-fifth volume of *The American Annual*, edited by Frank R. Fraprie and Franklin I. Jordan, is up to its usual high standard in selection of photographs and in the quality of their reproduction.

The articles include interesting and authentic treatments of the following subjects: "Using Polarized Light," "Press Photography," "Exposure for the Shadows or for the Light Areas?" "Photographic Darkroom," "Fluorescent Light in Photography," and a number of other very valuable pieces, written by authorities in the various fields of photography.

PHOTOGRAPHIC OCCUPATIONS. By Captain Burr Leyson. 178 pages, illustrated, 5½ x 8½ inches. *E. P. Dutton & Co., Inc.* Price, \$2.

Photography today is an exciting art. All kinds of opportunities for wide-awake young men, with a bent for photography, have opened up. For them Captain Burr Leyson covers the various avenues: news photography—a thrilling life for energetic boys; aerial photography—excitement from the skies; catching the changing life of the world for the newsreel; color photography; high-speed photography; portraiture; in short, review of the many different expressions of this art, which offer opportunities for interesting careers.

MODERN PHOTOGRAPHY: THE STUDIO ANNUAL OF CAMERA ART, 1940-41. Edited by C. G. Holme. 120 pages, illustrated, 7½ x 10 inches in size. 8 color illustrations. *The Studio Publications, Inc.*, New York and London. Price, \$2.50, paper; \$3.50, cloth.

This is a collection of photographic reproductions, with a great variety of subject matter. Technical data is given for each illustration, and introduction is by Alexander King, formerly associate editor of *Life* magazine, and now the editor of *Stage*. The book is a very valuable collection of some of the best pictures of our time.

ENLARGING. By C. I. Jacobson and P. C. Smethurst. 189 pages, illustrated, 5½ x 7½ inches. *The Focal Press*, publishers. Distributed by Burleigh Brooks, Inc. Price, \$2.25.

This thorough book aims to give complete information on up-to-date practice, based on scientific accuracy. It provides not only "how to do it" directions, but also states the reasons and describes the theoretical background of every move.

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Beautiful
COLOR PRINTS

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The VICTOR Speed-O-Matic **\$8.75**
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NO Gift to a camera fan could be more appropriate than this speed flash synchronizer. Fits any between-lens shutter that accepts a cable release. It synchronizes peak of flash with shutter at speeds as high as 1/500 second. See it at the nearest camera store, or write direct for our descriptive folder.

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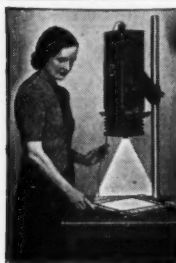
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Ideas For Your Christmas Cards

• A LITTLE PLANNING HELPS produce a photographic Christmas card that stands out from the huge stack everyone receives during the season. The three cards shown here are examples.

Because I am interested in music as well as photography the "Christmas Concerto" (Fig. 1) was an appropriate idea. I purchased the



FIG. 1

score at a music supply house. They suggested my buying "a much better edition," which was headed only with the composer's name, the opus number, and the key in which the concerto was written. That didn't fill the bill as well as the cheaper edition with the more complete heading.

Dressed in "white tie and tails" I posed for a picture imitating the gestures of an orchestra conductor, and made a large glossy print from



FIG. 2

this negative. The figure was cut out from its inappropriate background and pasted on the first page of the score. A rubber stamp made to order with the words "Conductor's Copy" and my name was used to stamp the notation seen in the upper right hand corner of the page. With a 5x7" view camera I then made a copy of the entire sheet and contact printed Christmas cards from this negative.

The Christmas message (Fig. 2) was written on the sheet of stationery in large letters with India ink. A photoflood bulb was placed in a light socket directly over the subject, and another bulb in a reflector was set somewhat to the side. The coat of arms was strengthened on the negative and straight prints were made.

The card shown in Fig. 3 required some traveling to produce, as the dates were the numbers on actual firemen's helmets. We located Engine Company No. 39. The shot of me had been just taken when the fire alarm sounded and the fireman who had loaned me his helmet made a frantic grab for it.



FIG. 3

Glossy prints of the helmeted heads were made and cut out. These were pasted on a sheet of white paper and the greeting written in India ink as the illustration shows. This was then copied with the 5x7 view camera and the Christmas cards contact printed from that negative.

For a little adventure, a lot of fun, make a Christmas or New Year greeting card, using ideas like those described.—Robert S. Holzman, New York City.



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instead we gladly send our up-to-date bargain list FREE. Every item is a "hot buy"—and in stock ready for delivery when the bargain list is mailed to you!

free Send postcard for latest issue and if not in market right now, send anyway for future issues. You'll save p-l-e-n-t-y! Address Dept. M2, attention Mr. Lenz.

Special Sale

5x7 Stainless Steel Trays	42c
8x10 Stainless Steel Trays	\$1.17

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11 West 52nd Street New York
(Near Radio City) CI-7-0070

At Your Dealer (Write for Literature) D. PAUL SHULL 240 So. Union Ave., Dept. M12 Los Angeles, California

SPEED-O-COPY

FOR LEICA OR CONTAX

FOR LEICA

Focus on ground glass.

Mount camera lens here.

Mount camera on this plate.

OR CONTAX

Hinges for swinging camera or ground glass into position.

Mount entire unit on tripod here.




GROUND GLASS FOCUSING ATTACHMENT:

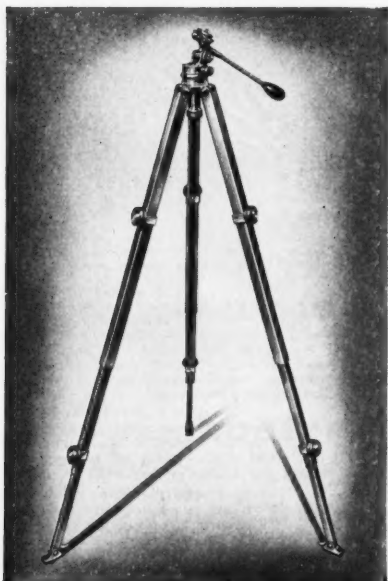
SPEED-O-COPY permits rapid, critical ground glass focusing. Eliminates adjustment for parallax. Assures fine detail and composition. Gives negative size view of subject. . . used especially for reproduction, copy and small object work. Essential in color photography. Simple and quick to attach. Prices—Leica, \$28.50; Contax, \$31.50; new models for Argus C-2 and C-3 Cameras, \$28.50.

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1 strip 36 exposures 35c
3 rolls \$1.00; 6 rolls \$1.75

From your 35 MM negative, we will print 35 MM positives from which you may make brilliant 2"x2" slides, or which you may project in a continuous film strip projector. . . We will return your negative, with the positive strip. Time and temperature fine grain developing of 35 MM negatives—25c per roll 36 exposures—reloads of 35 MM film—40c each.

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CAMERA CLUB

— NEWS AND IDEAS —

• THE MAKING of "Club Books" is being undertaken by the Rockefeller Center Camera Club. Here is the idea: A group of members, for example, 20, agrees to make a "Club Book." Each selects the photograph he thinks represents his best work, and makes 20 prints. Each print may be autographed on the back. The prints are then assembled to make 20 Club Books each containing 20 different prints. Each member of the group receives a book, which is to be covered and bound, loose-leaf style and flat opening.

* * *

Exhibits available from the following clubs:

The Sahuaro Photographic Society

R. W. Sayre, Sec.

3014 Sunnyslope Ave.

Miami, Arizona.

Crown Camera Club

365 New York Avenue

Brooklyn, New York.

Marion Camera Club

Robert J. Bradley, Sec.

3740 South Boots St.

Marion, Indiana.

* * *

NEW CLUBS

Cohanick Camera Club

Bridgeton, New Jersey.

Central Florida Camera Club

Winter Haven, Florida.

F.B. Club

Salinas, Calif.

Emmaus Camera Club

Buffalo, New York.

The Roanoke Camera Club

Roanoke, Virginia.

* * *

VISITORS WELCOME

Baltimore Photo Guild

511 South Clinton St.

Baltimore, Md.

Meets every Monday night.

Miniature Camera Club of Philadelphia

Architects Bldg.

17 and Sansom Sts.

Philadelphia, Pa.

Meets second and fourth Thursday, 8 p. m.

Bartlesville Camera Club

410 East 4th St.

Bartlesville, Okla.

Meets first Thursday night of each month.

Photo Club of Jersey City, Inc.
22 Lexington Ave.
Jersey City, New Jersey.

Write to Jack Kennedy, Pres.
Crown Camera Club
365 New York Ave.
Brooklyn, New York.

Write to Julius Baar, Sec.
Camera Club of Bay Ridge
9126 Fifth Ave.
Brooklyn, New York.

Meets every Tuesday evening, 8 p. m.
The Camera Circle
1032 Clement St.

San Francisco, Calif.

Meets on first and third Fridays of
each month, 8 p. m.

"LATENSIFICATION"

Increases Film Speed 2 to 4 Times

With no more equipment than a panchromatic safelight, any photographer can increase the speed of a film from two to four times right in his own darkroom. "Latensification," the name describing this new process, is an outgrowth of the research being done by DuPont Film Manufacturing Corporation on high speed 35 mm. films.

This method of hyper-sensitization bids fair to become an outstanding development in the art of photography. It opens whole new fields of subject material to a camera owner. He can take action pictures with lighting conditions now considered impossible. In many instances, extra lights and tripods can be dispensed with altogether. Where they are used, they become much more effective.

The process itself amounts to nothing more than deliberately fogging an exposed film with the rays from a dark green safelight. The maximum latent image intensification occurs when the film is fogged over a period of from 25 to 40 minutes, at a distance of 5 to 10 feet from the safelight.

In practice some experimentation may be necessary to arrive at the condition that will produce the greatest increase in speed. However, once determined, these remain constant and the effect of "Latensification" may be repeated again and again with very uniform results.

Films intensified in this manner may be processed in any "negative" developer. The only departure from routine technique is a 50 to 75% increase in developing time to offset the loss in contrast resulting from "Latensification."

Exposures have been made at film speeds far in excess of four times normal where "Latensification" has produced negatives that would yield satisfactory prints. Before attempting this extreme sensitization, work with a speed increase of about four times normal.

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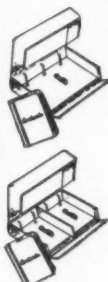
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 - DOLLINA III, f2.8, Tessar, \$52.50; f2.9... 42.50
 - VOIGT, BRILL, 3.5, Comp.-Rap., \$29.50; 4.5 Skop, Comp. 19.50

- AS-NEW**
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 - LEICA G, chrome, f2 Summar... 109.50
 - CONTAX II, f2 Sonnar... 135.00
 - CONTAX III, f1.5, Sonnar... 169.50
 - SUPER IKONTA B, f2.8, C. Z. Tessar, latest... 109.50
 - AUTO. ROLLEIFLEX, f3.5, C. Z. Tessar, latest... 109.50
 - VOIGT, AVUS, 2.1x3 1/2", f4.5 Skopar, Comp... 29.50
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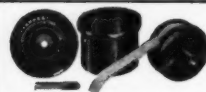


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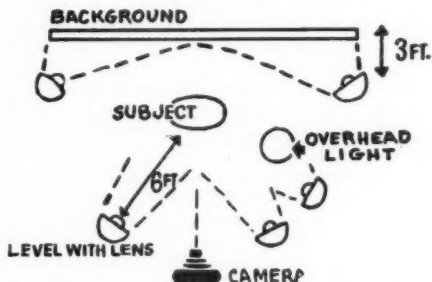
THE COVER

• THIS KODACHROME color shot required special attention to the lighting to avoid extreme contrasts, because of the subject matter, which ranged from the bright, sparkling white of the snow man to the almost complete black of the Rolleiflex camera. It was taken by Fred Koepfer of the Free Lance Photographers Guild.



Six 500-watt mazda lamps (the 3200°K type lamp) were set up as indicated in the diagram. The background lights produced an even tone on the background and eliminated shadows behind the subject.

For use as a cover, the picture was reversed or "flopped," to put the snow man on the left. He was on the right in the picture as originally taken.



Two 500-watt lamps provided the main light source at the right of the camera. This was supplemented by an overhead light. The fill-in light to the camera's left was about a foot and a half farther from the subject than the main lights.

Exposure was 1/5 seconds at f11, taken with Speed Graphic camera. Helen Dilard, New York professional model, posed.

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IT'S THREE METERS IN ONE

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ONE-HAND OPERATION with new finger-tip control. Point your G-E meter as you point your camera; it won't pick up excess light from sky, snow, or water to cheat you of delicate shadow details.

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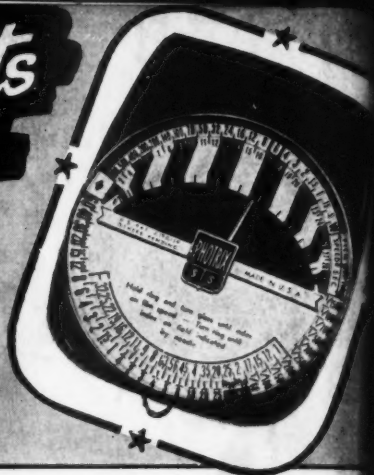
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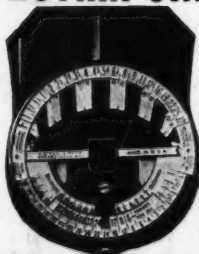
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